What Price Glory?

WITH December 31st comes the ending of another profitless year in the paper industry.

It could not be otherwise.

The industry has been leaderless.

Its management has been visionless.

Its overproduction has been senseless.

Its personality has been spineless.

Its internecine warfare has been lawless.

And, its immediate future looks hopeless.

In fact, no hope of peace or profit can come to the industry until the wholly uneconomic industrial warfare between certain willful producing units seeking dominance in the paper industry, ceases.

"War is Hell!"

War means demoralization, destruction and bankruptcy.

It matters not whether the war is for political, territorial, or industrial dominance; it all comes to the same end.

While the war is going on, all civilizing processes and progresses are suspended.

The combatants are wholly engaged in matters of aggressive offense or puissant defense.

While one crowd seeks to destroy, the other fights to survive. The longer the war lasts, the bitterer become the issues and the greater become the losses.

Both sides forget that every war of every kind must be paid for at sometime.

On November 11, 1918, the World War ended, but to-day—13 years later—we are in the throes of a general world-wide economic depression, due to the fact that we are face to face with the painful process of paying for the wholesale waste of life and substance as a result of that titanic struggle.

By the same token, the four years of willful, wasteful, industrial warfare, which has been waged by certain dominant interests for supremacy in the paper industry, has so far resulted in the loss of hundreds of millions of dollars of wealth, the short circuiting of hundreds of thousands of lives, all of which must be paid for. It will require many long years to restore the lost substance and longer still to heal the scars of the senseless battle, after it has ended.

But the battle still continues.

The present state of the price war in the industry seems to be a stalemate. Both sides seem to have dug themselves into a veritable Hindenburg line of trenches where they will remain indefinitely probably, or until, by the sheer exhaustion of their respective resources, they will at sometime in the future come to their senses and declare an armistice.

What a conscienceless situation?

Why prolong the devastating fight?

Who will be the gainer by continuing the wholesale destruction of wealth?

Every day this warfare goes on, the paper industry loses profit.

The Government loses revenue.

E D I T O R I A L

The states and municipalities have lost income.

Why wait till both sides are bled white?

Is it not the appeal of common sense which demands that both sides quit fighting, compose their differences like honest men, get together and work for their common good and fight as patriots against their common enemy, the general world-wide depression?

There is a battle worth their best mettle.

The paper industrial price war is furnishing comfort and aid to the depression enemy.

The paper price war can end only in a draw and only after the resources of both combatants are exhausted.

How much better to salvage what equities remain and turn the whole forces of the paper industry from fighting each other to vigorously fighting depression!

There must be somewhere in these United States some powerful combination of common decency and common sense that can see the logic of these miserable events as we are clearly beholding them, and has enough backbone and grit to summon the leaders of these warring factions before them and show them the indubitable consequences of this price-war folly, in such unmistakable terms as will cause them to make an immediate cessation of price-war hostilities and return to the safe and sane procedure of profit-making.

If ever there was a time when our country needed the combined energy of every industry to be definitely turned to profit-making, that time is **right now.**

The business situation of the nation and the industry is facing the gravest problems of existence.

The time has passed for indulgences in personalities, for criminations and recriminations which make only for exhausted resources.

The hour is here and now when all the present paralyzed energies of the paper industry should be revitalized and released for the fight for profits.

Competition? Yes!

Competition for profit—not for volume.

The paper industry has amply demonstrated its fighting ability.

We do not want it to stop fighting—we counsel harder fighting than ever.

We want only to change the objective of the battle from fighting each other for volume to fighting together for profit.

The Sale of National Forest Timber

THE Alaskan pulpwood controversy, particulars of which have been published from time to time in THE PAPER INDUSTRY, receives attention in the annual report of the Forest Service for 1930-1931, which was issued early this month. The reference is contained on pp. 39-40. It is of so much present interest to manufacturers of newsprint paper that we reproduce it in full below, as follows:

"Near the close of the year the long-standing policy of not offering large sales of timber for new sawmills was reaffirmed and extended by direction of the President. This policy was first inaugurated because the productive capacity of the already-existing sawmills has been steadily in excess of the needs of the country for lumber, leading to overproduction. It is recast with more rigid definition as an assurance to the lumber industry that during the period of depression, which has greatly augumented the very serious difficulties of the industry, national-forest timber will not be sold to supply needs that private stumpage is available for. Public announcement of the reaffirmed policy was made as follows:

> No sales of national-forest timber will be made during the present economic situation where the value of the timber is in excess of $500, except under the following three enumerated conditions:
>
> (1) To supply the needs of already-existing sawmills which are dependent upon the national forests for their raw material and where such raw material cannot be obtained elsewhere.
>
> (2) To furnish domestic paper mills with raw material needed to supply the domestic market with newsprint and other wood pulp products.
>
> (3) To dispose of wind-thrown, fire-damaged or fire-killed and insect-infested timber.

"This policy protects the users or manufacturers who are dependent upon a stable supply of timber from the national forests, but removes any possibility of the crowding of lumber from new enterprises supported by national-forest stumpage, on a market already fully supplied. The exception in regard to sales of pulpwood is due to the importation, as pulpwood, wood pulp, or paper, of over half of the pulp products consumed in the country. The use of American wood in American mills for the manufacture of a larger proportion of the country's newsprint and other papers would employ American labor and would utilize American natural resources. It is not expected that large

When the bottom is out of the market:

• Nothing helps more in the mad scramble for orders than having an edge on quality.

• Much potential pulp quality is often needlessly sacrificed in bleaching.

• The past year has brought some considerable progress in the technique of this operation which we would be glad to tell you about.

PULP BLEACHING CORPORATION
200 FIFTH AVENUE, NEW YORK, N.Y.

E D I T O R I A L

sales to salvage dead or damaged timber, under the third exception, will be necessary.

"The awards of the large sales of pulpwood in Colorado, mentioned in last year's report, were allowed to lapse by the highest bidder, in view of the general business conditions. The availability of spruce and true fir in the Rocky Mountains, as well as of hemlock and spruce in Alaska, is now well-known, however, and will inevitably lead to the utilization of these national-forest pulpwood resources."

It will be seen from the foregoing that the Forest Service looks to the ultimate disposition of pulpwood now growing in the Alaskan forest reserves by sale for the further production of newsprint paper. The matter is merely in abeyance at present.

New Discoveries

THE newspapers are fond of exploiting alleged new discoveries in pulp and paper work. One day it may be an invention for converting sugar into cellulose for the production of articles like cellophane, celluloid and photographic films. On another occasion the discovery of a new source of fiber from some common weed or other may take the newspaperman's fancy and result in the appearance of articles foretelling a revolution in papermaking when reeds, grasses and waste of various kinds come to be employed as raw materials of the papermaker's art.

At periodical intervals for many years past, a plant of the nettle family known as ramie or China grass has been proposed as a source of papermaking and of textile fibers. Ramie furnishes an exceptionally strong fiber and it is used to some extent in Europe in the manufacture of certain kinds of cigarette paper. It has also been employed experimentally in the textile field for making plush and velvet fabrics. It was at one time hoped to make use of ramie as a base for rayon and similar cellulose derivatives, but the difficulty of working the fiber, owing to the presence of a peculiarly resistant gummy substance, has heretofore offered a seemingly insuperable obstacle, though millions of dollars have been spent in experimentation by various companies to produce from it a textile fiber that would compete successfully with other fibers. Innumerable patents have been taken out on machinery and processes calculated to solve the difficulty of producing a pure fiber, but little real progress has been made. There are great possibilities before the man who can develop an inexpensive process for the pulping of ramie, as the plant can be grown in different parts of the United States so as to yield a perpetual supply of paper material.

It is the same with de-inking processes for the recovering and remanufacture of waste paper. Patents have been issued covering all kinds of mechanical and chemical devices for the removal of printer's ink from old papers but the ideal method of treating waste of this kind so as to recover paper fibers in a state of purity is still in the future. But a fortune surely awaits the man who can evolve a satisfactory and inexpensive process of repulping waste papers to produce a sheet of equal whiteness with the original.

It is unfortunate that commercial development of results is often slow and disheartening, but a point is surely reached at sometime when concentration of effort on a problem by a number of minds brings success, and it may be regarded as inevitable that our industry shall yet reap benefit from the long continued search and many failures of inventors in the invention of new products and obliteration of old, unprofitable ones.

Peace and Good Will

THE peace of industry seemingly has been replaced during the past two years with chaos. Trading has been superseded by hoarding, and the anthem of cheer which has in better years rejoiced the hearts of the people has become a lamentation.

The struggle of business versus depression which has engaged the thoughts of the people of the earth has been met with various counterbuffs. Economic forces have been torn apart, analyzed and treated with a multitude of remedies. Recuperation is already being manifested, but we are impatient for recovery and the end of the year finds this nation and its brothers looking past the holiday season to the dawn of the New Year which is firmly believed to be the vanguard of prosperity.

Since the wise men brought gifts to the Christ Child, Christmas has been a season of giving. How fitting, then, the suggestion from our Government that all of the people who have not been seriously affected by the wave of unemployment which has swept the country, should give—and buy—put their means into circulation, that the stream of business which has been at such a low ebb may again flow on its way of peace and good will, bringing into production idle plants and restoring the pay check to thousands of workers.

It is the sincere wish of THE PAPER INDUSTRY for its advertisers and readers that all of their hopes for the coming year may be realized and the mutual good will that has existed between us may continue.

THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

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Alignment Charts

By D. S. DAVIS

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A Treatise on How to Prepare Graphical Methods of Calculation

THE technical man in the pulp and paper industry, as elsewhere, is generally too busy to personally undertake many of the numerous routine calculations so necessary for efficient operation. In delegating these to assistants and operators who are not experienced in computation he must provide rapid and practically error-proof graphical methods.

Alignment charts meet these requirements most admirably, for once constructed, they can be safely turned over to anyone who can use a straight-edge and read values off a scale. It is the purpose of this paper to illustrate, with practical examples, the construction of several typical charts, omitting discussion of the underlying geometrical theory which depends only upon the familiar properties of similar triangles.

The three forms of alignment chart best adapted to pulp and paper calculations may be designated as the logarithmic type, the "N"-type, and the recurrent variable type, and the distinguishing features of each will be covered in detail in connection with the examples to follow. As will be seen, the choice of chart-type depends upon the nature of the calculation; that is, upon the arrangement of the variables in the equation, upon the upper and lower limits of the variables, and somewhat upon the precision desired. The three forms have one characteristic in common: a straight line will cut three scales in values satisfying the equation under consideration.

Logarithmic Type

The logarithmic form of chart consists of three or more parallel axes bearing scales which are proportional to the logarithms of the values with which they are marked and are thus similar to the A, B, C, D, and K-scales of a slide rule. In the case of the C and D-scales of a 10-inch slide rule, the distance between the left index where log 1 = 0 and the right index where log 10 = 1 is 25 cm. and the unit representation or length of scale corresponding to unit difference in logarithm is 25 cm. Similarly, the unit representation of the A and B-scales is 12.5 cm. while that of the K-scale is 8-1/3 cm.

While many logarithmic alignment charts can be prepared using only these three unit representations, there is often need for unit representations as low as 4-1/6 cm. and as high as 50 cm. Such scales may be laid off by use of Figure 1 which is constructed as follows: Along the line AB, lay off a centimeter scale reading from 0 to 50, erecting perpendiculars at intervals of one centimeter. Mark off a logarithmic scale having a unit representation of 25 cm. along the 25-cm. perpendicular using the C-scale of a 10-inch slide rule and draw slant lines from the points so marked to A, extending the lines to meet the 50-cm. perpendicular. The slant lines will cut the vertical lines in logarithmic scales having unit representations between 0 and 50 cm.

Three Variable Equation—The construction of a logarithmic alignment chart for a three variable equation may be illustrated in connection with the Francis formula for calculation of Q, the rate of flow in gallons per minute over a rectangular uncontracted weir, b inches in width, 10 to 40, when the head is H inches, 0.6 to 3:

$$Q = 3.00\ b\ H^{1.5}$$

Choosing 25 cm. as the unit representation for the b-scale, fold the unit chart (Fig. 1) along the 25-cm.

line, place the folded edge along the b-axis (Fig. 2) and mark off the b-scale between 1 and 4, labeling these points 10 and 40. Draw the H-axis parallel to the b-axis at a convenient distance of 15 cm. from it and lay off the H-scale between 0.6 and 3, so that values of H increase in the same direction as do

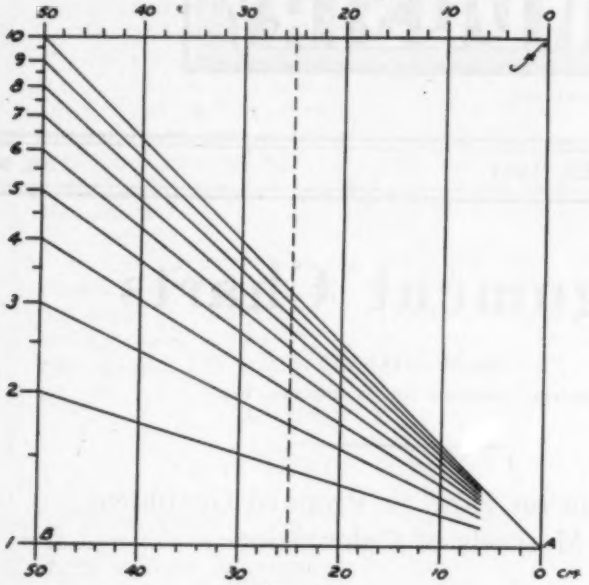


Figure 1

those of b, using the unit chart folded at some convenient perpendicular, say the 25-cm. line. Because of the exponent, 1.5, however, the true unit representation for this scale is $\frac{25}{1.5}$ or 16-2/3 cm. Draw the Q-axis parallel to the b and H-axes and space it so that the distance between the b and H-axes is divided into segments proportional to the respective unit representations of these scales. In this case, the Q-axis would be located 9 cm. from the b-axis and 6 cm. from the H-axis, since 9 : 6 = 25 : 16-2/3. The unit representation for the Q-scale is equal to the product of the other unit representations divided by their sum or

$$\frac{25 \times 16\text{-}2/3}{25 + 16\text{-}2/3} \text{ or } 10 \text{ cm.}$$

Align the points b = 10 and H = 1 as shown by the dotted line and mark the intersection with the Q-axis as Q = 30 as required by the equation. With this intersection as a starting point, mark off the Q-scale so as to increase in the same direction as the b and H-scales using the unit chart folded at the 10-cm. perpendicular. Had the equation been

$$Q = \frac{3.00\ H^{1.5}}{b}$$

the Q and H-scales would have been constructed so

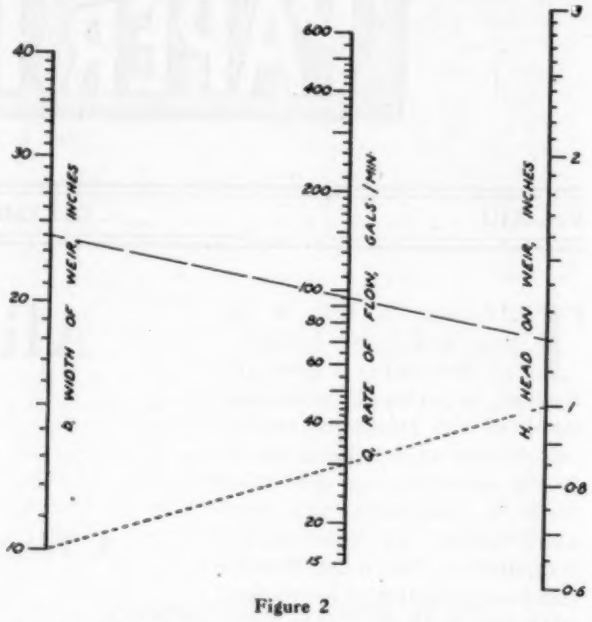


Figure 2

as to increase in the same direction while the b-scale would have been made to increase in the opposite direction.

Four-Variable Equation—In the case of the four-variable equation,

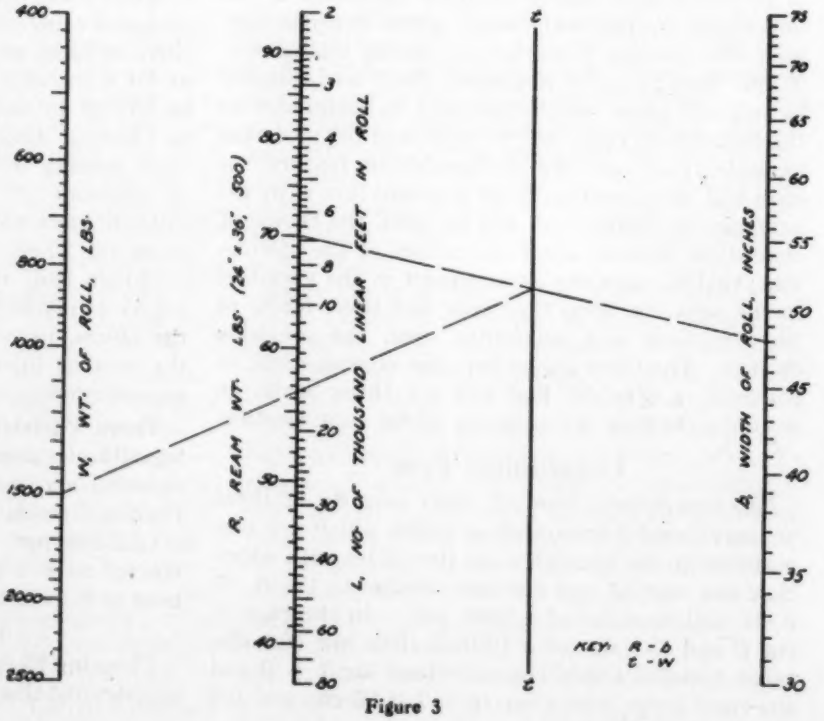


Figure 3

$$L = 36{,}000 \frac{W}{R\,b}$$

where L is the number of linear feet of paper in a roll weighing W pounds, 400 to 2,500, when the width of roll is b inches, 30 to 75, and the ream weight of

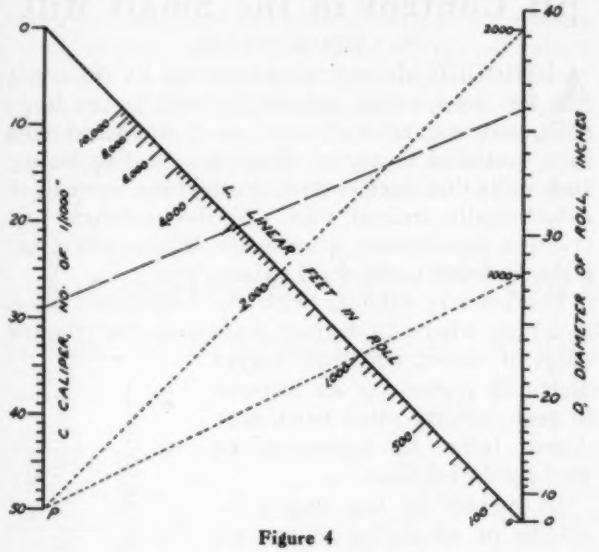


Figure 4

the paper is R pounds (24 in. x 36 in., 500), 40 to 90, it is convenient to write

$$t = R\,b$$

and

$$L = 36{,}000 \frac{W}{t}$$

and to construct charts for each equation, choosing the same unit representation for both t-scales so that the charts may be combined by super-imposing the t-axes, (Fig. 3.)

Choosing 50 cm. as the unit representation for both the R and b-scales, mark off logarithmic scales as in the previous example on parallel axes spaced, say, 14 cm. apart. The unit representation for the t-axis, which need not be graduated, will be

$$\frac{50 \times 50}{50 + 50} \text{ or } 25 \text{ cm.}$$

and the t-axis will be located midway between the R and b-axes. Since t, R, and b are all numerator terms, these scales will all increase in the same direction. If the unit representation of the W-scale is chosen equal to that of the t-scale, 25 cm., and if the W-axis is located 14 cm. to the left of the t-axis, the L-axis will coincide with the R-axis, a compact chart will result, and the unit representation of the L-scale will be

$$\frac{25 \times 25}{25 + 25} \text{ or } 12.5 \text{ cm.}$$

The W and t-scales will increase in opposite directions while the W and L-scales will increase in the same direction. A starting point for the L-scale may be found by noting that L=36,000 when R=40, b = 50, and W = 2,000 and by aligning these values. Following the key, the dashed lines in Figure 3 indicate that a roll of 70-pound paper 48 inches wide and weighing 1,500 pounds will contain 16,100 feet.

N-Type

The ranges of the variables are often such that three-variable multiplication and division equations may be handled with greater precision by a chart in the form of a capital N consisting of two parallel axes and one diagonal axis than by a chart of the logarithmic type. Consider the equation,

$$L = 65.45 \frac{(D^2 - 12.2)}{c}$$

where L is the number of linear feet in a roll of paper D inches in diameter, 10 to 40, wound on a 3.5-

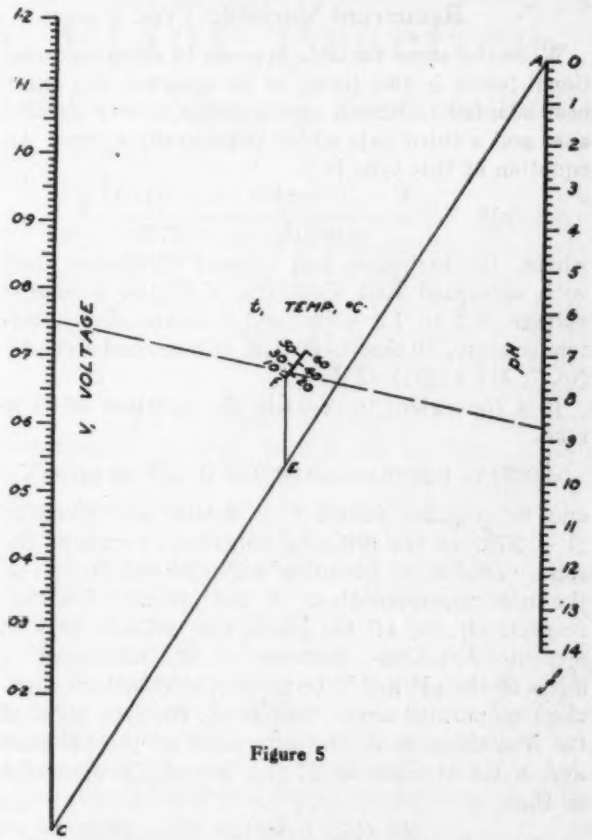


Figure 5

inch core when the caliper of the paper is c thousandths of an inch, 10 to 50.

Choosing 0.01 cm. as the unit representation of the D-scale, lay off the scale 0.01 (D^2 — 12.2) and label the points in values of D. Thus the point D = 10 would be located 0.01 (10^2 — 12.2) or 0.878 cm. from the point D = 0. Choosing the unit representation of the c-scale as 0.3, lay off the uniform scale, 0.3 c, on an axis parallel to the D-axis so as to increase in the opposite direction from the D-scale since the variables D and c occur one in the numerator and one in the denominator. Connect the zero points of the two scales with the diagonal L-axis and lay off the L-scale as follows: Choose a point, P, on the c-axis at some convenient distance from the zero

point of that axis, say 15 cm., and on the D-axis lay off the temporary scale,

$$15\ \frac{0.01}{0.3}\left\{\frac{L}{65.45}\right\}\ \text{or}\ \frac{L}{130.9}$$

starting from the zero point of the D-scale. From P project the temporary scale on the D-axis to the L-axis as shown by the dotted lines in the case of L = 1,000 and L = 2,000, after which the temporary scale may be erased. The dash lines indicate that the unwound length of paper of an average caliper of 0.029-inch, wound on a 3.5 inch core to a diameter of 36 inches, is 2,900 feet.

Recurrent Variable Type

When the same variable appears in differing functional forms in two terms of an equation, the chart best adapted to such a case consists of two parallel axes and a third axis which is generally curved. An equation of this type is

$$pH = \frac{V - 0.2408 - 0.0002\ t}{0.000198\ (t + 273)}$$

where, for hydrogen and calomel electrodes used with saturated KC1 solutions, V is the measured voltage, 0.2 to 1.2 volts, and t is the Centigrade temperature, 10 deg. to 60 deg. (Chem. and Met., 38, No. 7, 416 (1931) (Fig. 5.)

It is convenient to re-write the equation so as to read,

$$0.0002\ t + 0.2408 = -0.000198\ (t + 273)\ pH + V$$

and to consider 0.0002 t + 0.2408 and 0.000198 (t + 273) as the differing functional forms of the same variable, t. Choosing 1.25 cm. and 20 cm. as the unit representations of the pH and V-scales, respectively, lay off the scales 1.25 pH and 20 V in opposite directions (because of the difference in signs of the pH and V terms in the rewritten equation) on parallel axes. Connect C, the zero point of the V-scale with A, the zero point of the pH-scale and, if CA is taken as 27 cm., lay off CE along CA so that

$$CE = \frac{20\ (27)\ 0.000198\ (t + 273)}{20\ (0.000198)\ (t + 273) + 1.25}$$

Then lay off EF parallel to the V and pH-axes so that

$$EF = \frac{1.25\ (20)\ (0.0002\ t + 0.2408)}{20\ (0.000198)\ (t + 273) + 1.25}$$

The locus of point F will be the t-scale. A table of values for CE and EF calculated for 10 deg. intervals between t = 10 deg. and t = 60 deg. follows:

t, °C	10	20	30	40	50	60
CE, cm.	12.77	13.00	13.23	13.45	13.67	13.88
EF, cm.	2.56	2.54	2.52	2.50	2.48	2.46

The dashed index line shows that the pH value is 8.7 when the measured voltage is 0.75 at a temperature of 20 deg. C.

Had the re-written equation read

$$0.0002\ t + 0.2408 = 0.000198\ (t + 273)\ pH + V$$

the pH and V-scales would be laid off so as to increase in the same direction.

pH Control in the Small Mill

By GEORGE ENGERT

ALTHOUGH pH control has proven its value and has been widely adopted in most of the large mills, quite a number of small paper and board mills have hesitated to use it. There is a feeling among such mills that such control requires the services of a technically trained man. To the contrary, any practical papermaker, after a few days practice, can make accurate tests of pH values.

Everyone is familiar with the Fahrenheit thermometer, where 32 degrees represents the freezing point of water, and each degree above 32 represents an increase in heat. On the other hand, each degree below 32 represents an increase in coldness.

In measuring the degree of acidity or alkalinity on the pH scale, readings are taken in much the same manner as in reading the thermometer. In this case, 7.0 is neither alkali nor acid but is neutral. Every degree above 7.0 denotes alkalinity. In the process of sizing a beater of stock, it is well-known that the amount of alum required to precipitate the size is in excess of that required to neutralize it. If too little alum is used, the size will not be completely and efficiently precipitated.

On the other hand, additional alum over that necessary for proper precipitation not only adds to the cost of manufacturing but also has a very harmful effect on the finished product. High acidity in the stock is detrimental to all equipment with which the stock comes in contact. The cost of frequent replacement of stock pipes, pump parts, beater and jordan tackle, machine wires, wet and dryer felts, etc. could be lowered considerably if the acidity of the stock were kept at as low a point as is consistent with the grade of paper being manufactured. The use of a large excess of alum in precipitating the size has resulted from the crude methods of testing which have been and are even now being used by many mills. Actual experience in various mills has shown this excess to be as high as 50 to 100 per cent over that actually required.

Various mills maintain a pH Value of 4.4 to 7.0 in their beaters. In all cases, this pH value must be worked out in each mill to conform to variables in water hardness, degree of sizing, etc. The reaction that takes place in the beater when alum is added to size occurs readily at about 4.4 to 4.6. Any alum

used below these points, meaning higher acidity, is in excess of the required amount. On the other hand, unless sizing is satisfactory with a normal size consumption, insufficient alum is being used if the pH does not come down to 4.4 to 4.6.

Stock from the beater after dilution with the drop water to the chest may have a pH of 4.9 to 5.0 Stock on the machine will be about 5.2 to 5.5 in pH values. If the pH on the machine is 5.5 and sizing is unsatisfactory, it is not due to shortage of alum. Even if sizing is satisfactory, a test for pH may reveal the use of too much alum. Every pound of excess alum that goes over the machine reduces the initial strength of the finished product, to say nothing of the addition cost in the waste of this chemical.

It does not require an expensive pH set to make these tests. A number of chemical companies supply small inexpensive sets designed for this class of work. A set of this kind will sometimes pay for itself in less than a day.

The practical man who has not used this method of testing will find the results rather surprising. He will find that there is an optimum pH for each furnish where best formation, controlled sizing and maximum strength of the finished sheet can be obtained.

Lessons in Steam Plant Practice

Lesson XII—Pulverized Coal (Methods of Pulverizing and Handling Fuel)

By J. CHARLES RYDER
Champion Fibre Company, Canton, N. C.

These lessons in Steam Plant Practice are being published in THE PAPER INDUSTRY by arrangement with the Champion Fibre Company, Canton, N. C. They are a part of the general educational course conducted by this company under the direction of J. Norman Spawn, educational director.

THE two systems of pulverized fuel firing generally used in boiler plants were mentioned in lesson No. 9 and a general discussion of the various methods of pulverizing and handling the fuel between the raw coal bunker and the burners will be brought out in this lesson. The systems are: (1) bin or storage; (2) unit or direct fired.

The bin system consists of storage bins and a transport system between the pulverizing equipment and the burners, the pulverizing machinery being located in a separate building from the boilers. The raw coal is usually dried by some means to make pulverization easier and of a uniform quality, and where a separately fired rotary is used to dry the coal, such as that shown in Figure 37, it is much better and safer to house it separately from the boiler.

The raw coal going through this type of dryer, passes directly into the pulverizer from which the pulverized product is blown into a storage bin, then it is removed from this into other bins at the boiler by means of a transport system such as shown in Figure 38.

Air is used to facilitate moving the pulverized coal, and suitable vents must be provided to remove this air after the fuel has been deposited in the bin. The vents must be watched to prevent fine fuel escaping to the atmosphere. Some installations use the vented air over and over to transport the fuel, thereby preventing a vent loss. Care must be exercised as to the amount of air used to move the coal. Never permit the mixture to reach the right proportions for combustion, because premature ignition may occur in the transport system. The best mixture for transportation is rich in coal.

Another method of drying the raw coal and utilizing the waste heat of flue gases is shown in Figure 39. This type of dryer should be economical where it can be fitted into the existing equipment. Special feeders are used to remove the pulverized fuel from the storage bins to the burners. Small installations use a single screw (Fig. 40), while larger installations use multiple screws shown in Figure 41. The speed of either is regulated by a variable speed drive and the fuel is aerated in the chamber beneath the screws, thereby furnishing a part of the combustion air.

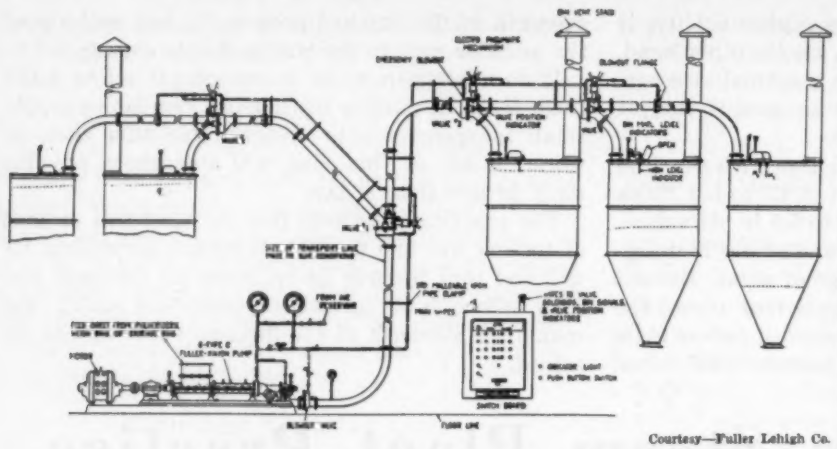
Another method of feeding is shown in Figure 42. This is a metering feeder having the advantage of metering the amount of fuel used. It is a big help to efficient operation because one can check up hour to hour, keeping up with the operation and the added satisfaction of always knowing "which way the cats are hopping."

The fuel fed into the furnace from the storage bin is of uniform fineness, and this system has a further advantage of having a supply of ready fuel at all times.

The Unit System

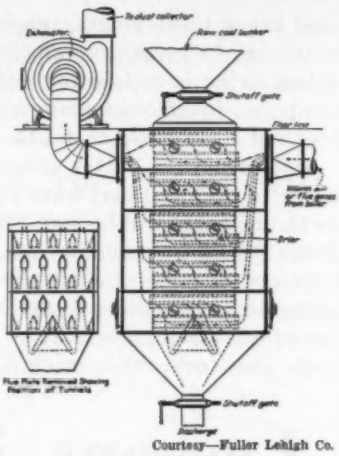
Unit system of firing means that the raw coal enters the pulverizer from an overhead bunker, and is dried, pulverized and fed directly into the furnace. The pulverizing unit is in the same room with the boiler.

This system may consist of single or multiple units, depending upon the size of the boiler served; or, conversely, one unit may serve from one to six burners in one or more boilers. Most any combina-



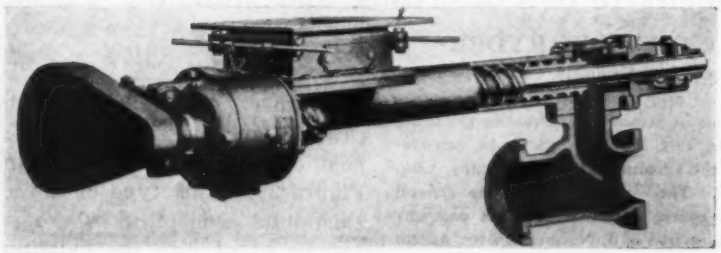
Courtesy—Fuller Lehigh Co.

Fig. 38—System for conveying pulverized coal



Courtesy—Fuller Lehigh Co.

Fig. 39—Vertical drier

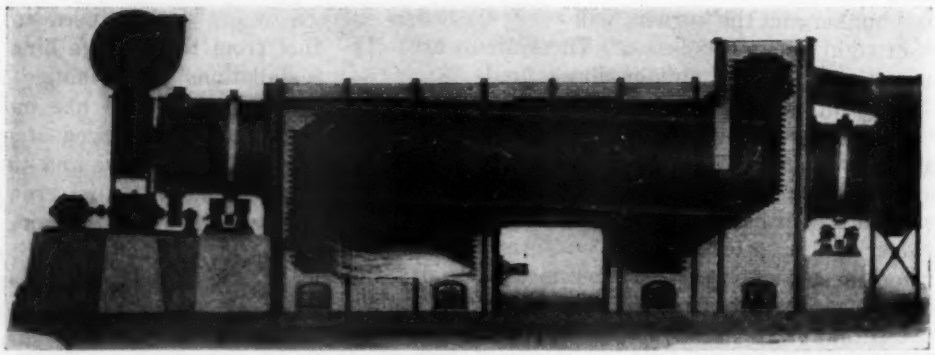


(Left) Fig. 40—Single screw coal feeder

Courtesy—Fuller Lehigh Co.

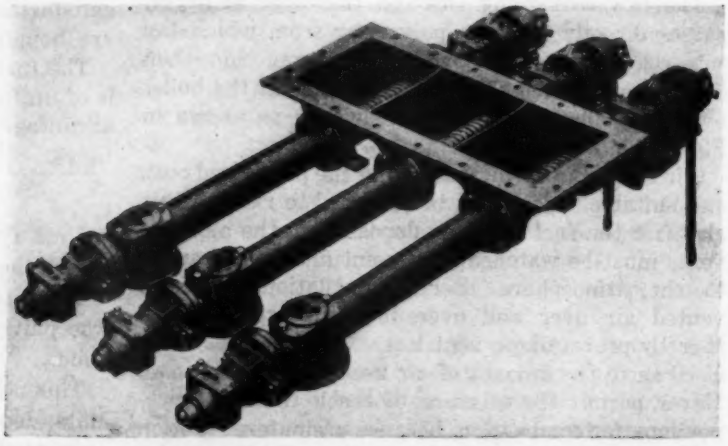
(Right) Fig. 37 — Rotary drier for pulverized coal

Courtesy—Fuller Lehigh Co.



Courtesy—Fuller Lehigh Co.

Fig. 42—A metering coal feeder



Courtesy—Fuller Lehigh Co.

Fig. 41—Triplex screw coal feeder

tion can be worked out according to requirements.

The various types of unit mills may be classified as follows:

(1) Impact ball mills
(2) Impact hammer mills
(3) Fixed ball mills
(4) Roller mills
(5) Attrition mills

Attrition has more or less of a part in pulverizing coal in any type of mill.

Each of these types has its proper field of application. There are some, however, that have a very much wider range than others.

Impact Ball Mills—This type of mill usually employs a disc feeder driven by a variable speed motor. The form or shape of the mill may be straight tubular or conical.

Figure 43 illustrates a tubular ball mill through which nearly all the combustion air is pulled with the pulverized fuel. Secondary air is supplied at the burners.

The conical ball mill (Fig. 44) admits part of the combustion air near the outlet end and forces it into the mill around the fuel outlet tube.

The balls are inside the mill mingling with the raw coal, and as the mill revolves, the balls are carried up the side until gravity overcomes centrifugal force, causing a shower of balls to strike into the mass of coal on the bottom. The impact of the balls continually falling into the raw coal, makes it necessary to have a hard renewable steel liner in the mill.

The pulverized coal runs high in fineness and tramp iron does not affect the mill operation. For that reason, no magnetic feeder is employed.

There is one type of ball mill that regulates the amount of coal fed by the speed of the mill itself, by means of a direct current motor and a rheostat, automatically operated through controllers actuated by the steam pressure which speed the mill up or down as the pressure rises or falls.

The pulverized fuel is delivered to the burners by a fan on the discharge end of the mill shaft.

The fineness is affected by the balls wearing off, in which case more balls are fed with the incoming coal. One make of machine requires 800 pounds of balls for 400 pounds of pulverized coal per hour, and 65,000 pounds of balls for 50,000 pounds of fuel pulverized per hour.

Impact Hammer Mills—This type employs variable speed feed rolls, reciprocating pushers or table feeders. The latter are usually magnetic to catch tramp iron, and some of them have an adjustable slice to regulate the amount of coal fed, while others have variable speed motors.

Variable speed motor driven feed rolls was explained in lesson No. 10.

Figure 45 illustrates a reciprocating feeder serving an underfeed pulverizer, showing how the raw coal is fed into the mill and the pulverized product pulled out of the classifier by a fan on the end of the rotor shaft and delivering it to the furnace through the burner. All air for combustion is utilized in the mill to facilitate drying, pulverization, delivery and combustion, and automatically varies according to the load demand carrying a constant CO_2.

The magnetic, adjustable speed, table feeder, shown in Figure 46, serves to prevent tramp iron getting into the mill, and it is well to have this added insurance, even though the incoming raw coal is run over a magnetic pulley on its way to the bunker. The mill is a four-stage, swinging hammer type, through which part of the combustion air passes and conveys with it the fuel. The cold air damper next to the fan is used to temper the mixture of coal and air on its way to the burners.

A three-stage pulverizer using a variable speed table feeder and preheated air entering with the coal, is shown in Figure 47. This compact unit is designed to pulverize 250 to 7,500 pounds of coal per hour.

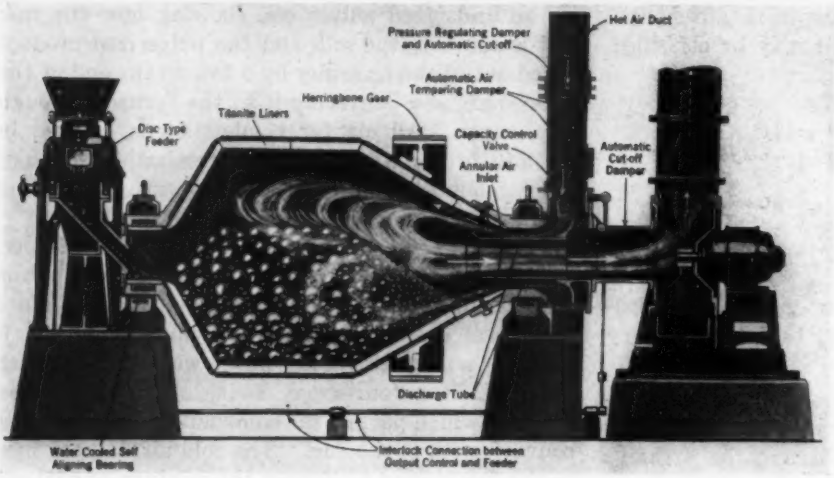
A vertical, one-stage, hammer type mill with a magnetic raw coal feeder is shown in Figure 48. This machine occupies very little floor space and is designed for small boiler firing.

The air for pulverizing and combustion is pulled through the mill by the exhauster fan and very little makeup air is required at the burners. The exhauster fan delivers the coal and air mixture into the furnace through the burners.

The preheated air used in unit pulverizers to dry, facilitate and remove the fuel, is obtained in various ways, some by hollow wall construction or air preheaters set in the path of the exit gases, while others pull hot gases out of the top of the furnace. With any of these methods a certain amount of cold air is admitted, especially when the raw coal is coming in dry. The coal and air mixture leaving the mill should be kept at the temperature recommended by the manufacturer of the mill.

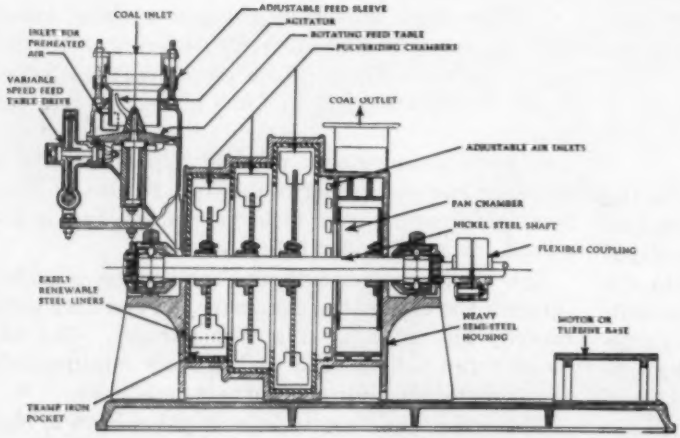
Renewable steel liners are used in all pulverizing mills. These and the hammers must be watched for wear. Fineness samples should be taken at regular intervals as described in lesson No. 10. This will tell when the coarseness of pulverization arrives at the point where the overall efficiency is likely to be impaired. Experimenting is necessary in any installation to determine the lower limit, and when this point is reached, renewals should be made before the efficiency is hurt.

Each installation must be studied separately; no hard and fast rules can be laid down as to the lower limit of fineness. Generally speaking, however, the finer the coal is ground, the better the efficiency will be, all other factors being equal. On the other hand,



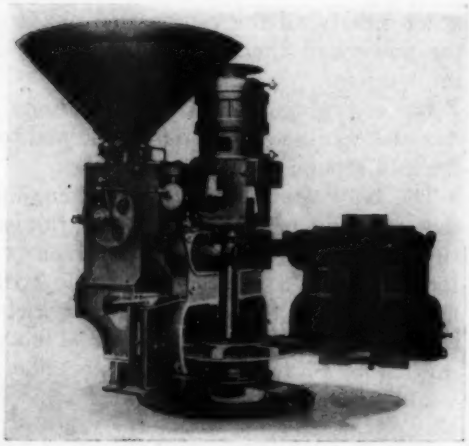
(Left) Fig. 44—Conical ball mill for pulverizing coal

Courtesy—Foster Wheeler Corp.



Courtesy—Erie City Iron Works

Fig. 47—Three-stage hammer coal pulverizer

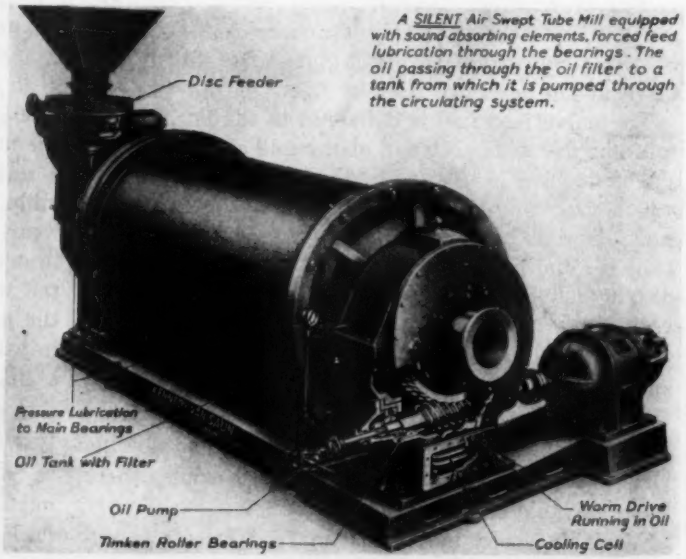


Courtesy—Whiting Corporation

Fig. 48—Vertical, one-stage hammer mill

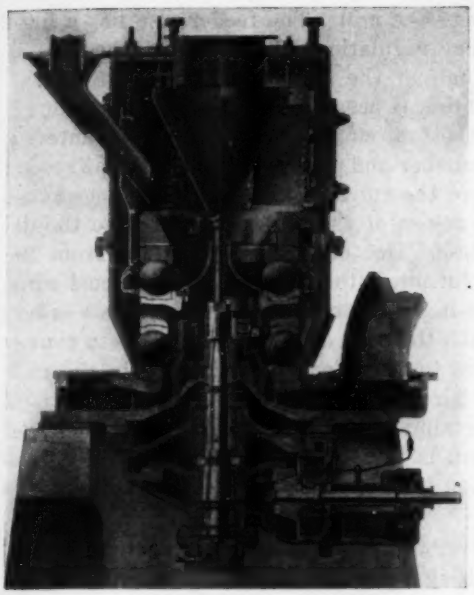
Courtesy—Strong-Scott Mfg. Co.

Fig. 45—An underfeed coal pulverizer


A SILENT Air Swept Tube Mill equipped with sound absorbing elements, forced feed lubrication through the bearings. The oil passing through the oil filter to a tank from which it is pumped through the circulating system.
Disc Feeder
Pressure Lubrication to Main Bearings
Oil Tank with Filter
Oil Pump
Timken Roller Bearings
Warm Drive Running in Oil
Cooling Coil

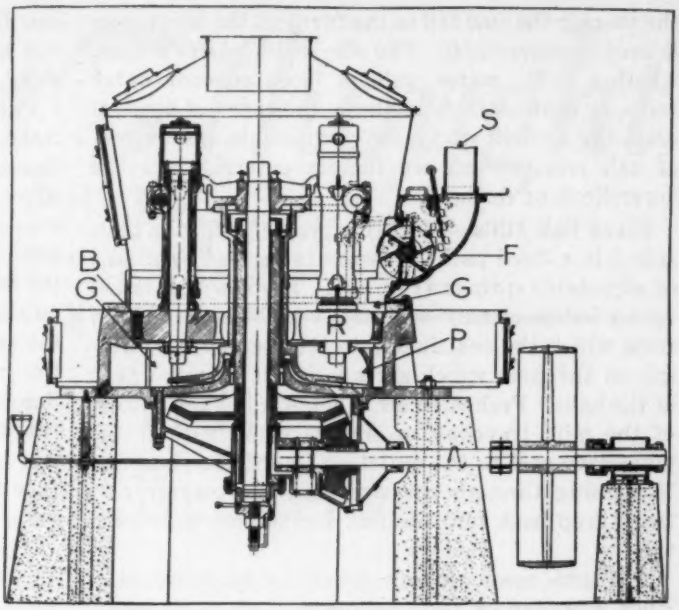
Courtesy—Kennedy-Van Saun Mfg. & Eng. Corp.

Fig. 43—Tube mill for pulverizing coal



Courtesy—Fuller Lehigh Co.

Fig. 49—Fixed ball coal pulverizer

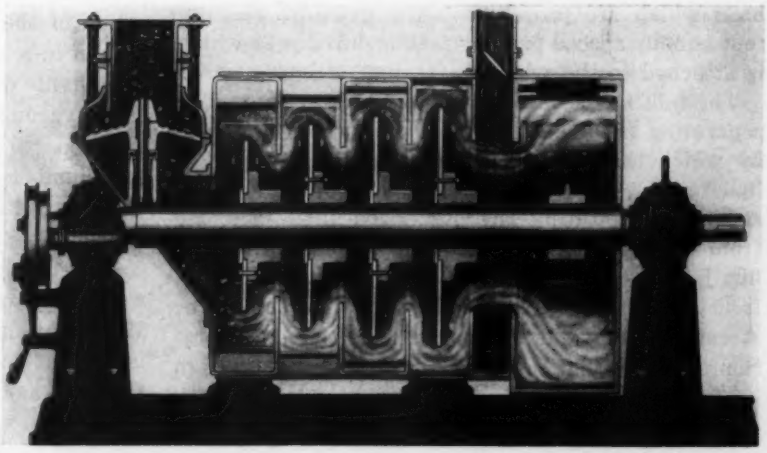


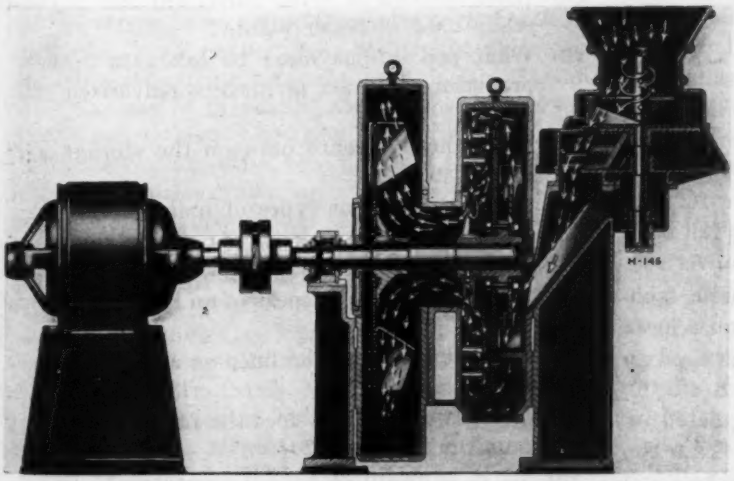
Courtesy—Combustion Eng. Co.

Fig. 51—Roller mill for pulverizing coal

(Right) Fig. 46—Four-stage, swinging hammer coal pulverizer

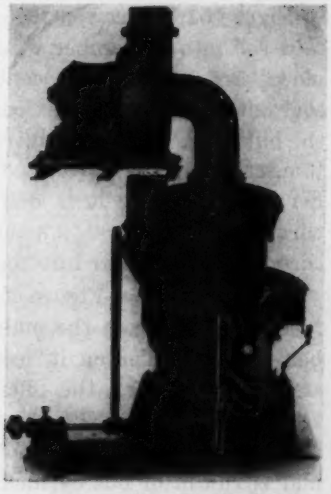
Courtesy—Foster Wheeler Corp.





Courtesy—Riley Stoker Corp.

Fig. 52—Attrition mill for coal pulverizing



Courtesy—Fuller Lehigh Co.

Fig. 50—Single row ball mill

the coarser the fuel fed to the furnace, the less power is used to pulverize it. The size and kind of furnace, whether brick, water wall, or block covered water walls, or combinations of these, the types of burners used, the amount of fly ash permissible, the system of ash removal—all are factors entering into the lower limit of fineness.

Fixed Ball Mills—With this type of mill, the balls travel in a fixed path; pressure is applied by means of adjustable springs (Fig. 49). The raw coal is fed by an independently operated variable speed drag, from which the coal falls into the feed spout, striking on the cone which spreads it out into the path of the balls. Preheated air is admitted in the bottom of the mill, traveling up and carrying with it the pulverized coal to the outlet on top of the classifier. In passing through the classifier, the coarser particles drop back into the mill for further pulverization.

The two rows of balls travel in hardened steel rings propelled by the rotating ring which is driven by floats attached to the main driving shaft.

The mill shown in Figure 50 has a single row of balls which are propelled in the grinding ring by four equally spaced pushers fastened to a yoke which is attached to the main shaft.

The mill has separating and exhauster fans. The separating fan is attached to and driven by the yoke by which the ball pushers are propelled. The exhauster fan discharges tangentially into a cyclone separator depositing the pulverized fuel. The air from the separator is returned to the mill through a flue just below the grinding zone. This type of mill is usually employed in connection with the bin or storage system, and is also made with screen separation, meaning that the pulverized fuel passes through a certain size screen on its way to the separator.

Roller Mills—With this type of mill, pulverization is accomplished by gravity and centrifugal forces. In Figure 51, the raw coal is fed by a variable speed feed roll into a chamber where it is caught up with plows fastened on the central shaft, forcing the coal out between the vertical suspended rollers and the bull ring. The air is introduced through the bottom, carrying the pulverized fuel up into the classifier, from whence it is delivered into the furnace through the burners. The coarse particles fall back through the classifier into the mill to be repulverized.

Attrition Mills—Figure 52 has a magnetic table feeder, driven from the main shaft through a loose belt with an idler on it, and when it is desired to stop the coal feed, the idler can be raised off the feeder drive belt. The amount fed is regulated by a scrape set on a tangent to the center of the table, and is run in or out by means of a hand wheel and screw. The further in the scrape is run, the more coal falls into the mill. The feeder also has a high and low gear regulation. In low gear, the feed is about one-half of the mill's capacity.

Pulverization is accomplished in two stages or effects. In the first effect, the incoming coal enters a hammer chamber and passes from here to the second effect, where the movable and stationary pegs cause a complex action of the coal, reducing it to the desired fineness. Hot flue gases are pulled from the top of the furnace into the mill to dry the coal while pulverizing it, and a small amount of cold air enters the mill with the coal, all of which is used to convey the mixture to the burners by the fan in the mill. Secondary air is supplied at the burners. The mixture in the mill is rich in coal, or putting it the other way around, is lean in air, which precludes premature ignition in the mill. The delivered mixture is very hot.

The delivery fan necessary for any unit type mill does two things: it creates a vacuum within the mill, or classifier, and delivers the pulverized fuel to the burners.

The act of creating the vacuum together with the action of the classifier, causes the mixture to swirl around in a circle, throwing the coarser particles to the outside where their weight overcomes the ability of the vacuum to hold them in suspension and causes these coarse particles to fall back into the pulverizing chamber for further pulverizing. The finer particles are lifted or floated out with the air and delivered to the burners; this is called air separation.

Pulverized coal will ignite spontaneously in air when the mixture arrives at a temperature of about 175 deg. Fahr. For that reason, cold tempering air is used at the mills to prevent pre-ignition between the mills and the burners.

Examination Questions

(1) What systems of firing pulverized coal is generally used in boiler plants?
(2) What precautions must be taken to prevent premature ignition in moving pulverized coal around?
(3) State the difference between the storage and unit systems.
(4) Name the various types of unit mills.
(5) What affects the fineness of pulverization in an impact ball mill?
(6) What affects the fineness of an impact hammer mill?
(7) In what way does the fineness affect the overall efficiency?
(8) What two functions does the fan on the end of a unit mill perform?
(9) What is meant by screen separation?
(10) What is meant by air separation?

Current Thought
by
William Sibley

Demonstrating Our Own Century of Progress

AFTER presenting the complete story of the "Century of Progress" Exposition, to be staged in Chicago during 1933, (in the November, 1930 issue), THE PAPER INDUSTRY stated, editorially, (in June, 1931) that: "The 1933 Exposition . . . . affords the paper industry an outstanding opportunity to present its message to the consuming public." About two months later, (August 21, 1931) Jesse H. Neal, General Manager of the American Paper and Pulp Association sent a general letter to all members asking the question: "Do you want a paper exhibit at the Chicago World's Fair Centennial in 1933?" Mr. Neal's letter pointed out, very briefly, the proposed plan for the industry to install a 22-inch papermaking machine, and supplementary exhibits of raw materials, as the exhibit of the industry—together with approximate costs of such an exhibit.

For nearly two years the Pulp and Paper Sub-Committee of the National Research Council Science Advisory Committee, headed by Allan Abrams, of the Marathon Paper Mills Company of Rothschild, Wisconsin, has been actively developing plans for the paper industry's proposed participation in the 1933 "Century of Progress" Exposition. A number of conferences have been held with the officials of the Century of Progress, blue prints of the proposed exhibit have been drawn, and full information concerning costs of installation and maintenance made available.

Because the time is rapidly approaching when such preliminary ground-work must be crystallized into definite action, may THE PAPER INDUSTRY again put its friendly oar into the discussion? This publication, frankly, is firmly convinced that participation in this Century of Progress Exposition would be of incalculable benefit to the paper industry.

In no sense is the 1933 Exposition to be a mere local celebration. It is to be staged in Chicago only because Fate linked the incorporation in 1833 of the Village of Chicago with the dawn of the most outstanding hundred years of scientific discoveries the world has ever seen. In keeping with its name, "A Century of Progress," it will portray, by easy stages and in simple form, the story of how scientific discoveries, and inventions based on these discoveries, have wrought sweeping changes in industry and altered, in deep-going manner, our social structure. This Play of the Ages will depict not only the importance of the role of science, but how and what have been the efforts of industry to translate these scientific discoveries into railroads, steamships, electric power, radios, telephones, television, automobiles, machinery, and—paper, if you please. The motif of this Century of Progress Exposition is the rise of mankind during the past hundred years—a rise that has wrought almost miraculous improvements in the living conditions of the average person.

Being an exposition of this character, the paper industry has an opportunity to explain, through it, the far-reaching improvements made to that commonplace product, paper, by scientific research. And how important such improvements are to every living person. It offers an opportunity to reach both consumers and customers; a chance to expand markets, build greater good will for this specific commodity, increase sales volume, and develop in the public consciousness a deeper appreciation of the place occupied by paper in the general scheme of things.

More important, the exposition gives the paper industry the opportunity to secure an intelligent comprehension by the people of the problems confronting it at the present time. By a graphic and convincing exhibit this industry can show how vitally the public is dependent upon it and its invested capital, and how without it, chaos would result. The public can be led to realize the difficul-

ties this industry has overcome and the benefits derived from such industrial victories. The paper industry can tell the story of method change and machine development; how the productive power of each man within the industry has been vastly increased; how neither science nor industry alone could have accomplished these things without the mobilization of capital on a large scale, and its executive control by competent industrial leaders.

This industry has a story to tell, a story which needs to be told. The telling of the story of paper through the medium of a dynamic, attention-compelling exhibit at A Century of Progress, would at that time not only be psychologically opportune, but probably the best and most lasting piece of advertising the industry could ever do.

Estimated Attendance

The officials of "A Century of Progress" know the wisdom of leaning backwards on the side of conservatism. They estimate the attendance at the Exposition during its 150 days of exhibit in 1933, at 50,000,000 people.

We realize, of course, that 50,000,000 people is a lot of folks. It is two-fifths the population of the United States. In spite of the enormity of this figure, however, we believe the estimate **ultra**-conservative. The Chicago World's Fair in 1893 had an attendance of 21,000,000 people—and that was a localized "world's fair"—something which this exposition is **not.** The 1933 Exposition is **not** a "world's fair" in any sense of the word. Nothing approaching "A Century of Progress" has ever before been attempted. The Exposition happens to be in Chicago, largely backed by Chicago people, incorporated under the laws of the State of Illinois as a non-profit corporation, and is to be a fitting celebration of the incorporation of Chicago as a village. But it is an exposition of scientific and industrial achievement, international in scope.

So, if the Chicago World's Fair in 1893 could attract 21,000,000 people—at a time when Chicago was only one-third its present population; when we had no automobiles or paved roads as we know them; no airplane transportation; no rail transportation in the sense we now have it—it seems to us ultra-conservative to estimate the attendance of the 1933 Exposition at only 50,000,000.

By the time the Exposition opens on June 1, 1933, our 1930-31 depression and our 1932 Presidential Election will have become history. Probably by that time the Manchurian difficulty will also be considered as comparable to a Villa-Mexican exploit. Business prosperity will have returned in solid measure. Such a condition, coupled with easier and cheaper means of transportation, will in our opinion bring to the Exposition an attendance considerably in excess of the estimated 50,000,000. Such is the audience offered to the paper industry's exhibit.

Exhibitors Already Signed Up

It may be of interest to some of our readers to know that although the opening date of the exposition is yet 19 months away, seven of the major exhibition buildings are either completed or under construction, and there may seem no great need to sign space contracts for perhaps another six or eight months. However, more than 60 large corporations have actually signed contracts and paid for their space in advance. This may seem a small list, but the number is increasing daily, and the long list of concerns that are seriously considering the advisability of exhibiting at A Century of Progress not only reads like the Blue Book of American industry, but includes the largest and best known industrial and research corporations from every country in the world.

Amongst the railroads already signed for exhibit space are the Pennsylvania; Baltimore and Ohio; Chesapeake and Ohio; Erie; Chicago and Northwestern; Chicago, Milwaukee, St. Paul and Pacific; Rock Island; and Pere Marquette. The Pullman Company will of course have its own exhibit. Packard and Studebaker have already signed for space, and probably within the next few months Chrysler will negotiate for his own individual building. General Motors, we have been given to understand, will erect and maintain their own building at a cost of approximately $1,000,000.

The Exposition will contain private exhibits from the diamond interests in South Africa to the Hudson Bay Company of northern Canada, and from such widely separated industrial interests as cellophane to ocean liners. Scores of national governments will maintain their individual exhibits, while our own Federal and individual State governments will each present their respective stories to the public in well-planned exhibits. As for the Exposition itself, it will provide the public with a range of interest and education from the probable opening on June 1st by a beam of light, believed to have been created by the Chicago World's Fair of 1893 (said to have been travling through the universe ever since) to immense buildings so constructed that they actually breathe with the fluctuation in atmospheric humidity.

The paper industry, in itself, has the means and the reason for maintaining a comprehensive dynamic exhibit at A Century of Progress. Probably the space required for the installation of the exhibit proposed, plus the maintenance expense, would cost in the neighborhood of $100,000. That figure, however, is a mere estimate. But whatever it costs, the paper industry can illy afford not to be ably represented at A Century of Progress. This industry has played a very important part in the century of progress just passed. Why not tell it to the American public?

New Freight Rates Effected

Class Rates Revised in Both Official Classification and Western Trunk Line Territories

By E. E. CONDON
Traffic Counsellor, Chicago

FREIGHT rates on shipments of all grades of paper on which class rates apply have been revised and the new rates were effective December 3.

This revision effects all class rates within and between Official Classification territory and the Western Trunk line territory. The Interstate Commerce Commission conducted a general investigation concerning the reasonableness of these rates and the decision rendered has resulted in both increases and decreases.

The rate structures in these two territories were investigated in separate proceedings; however, the new rates were effective December 3 in both territories.

The governing principle of this adjustment is the so-called "mileage scale." In the past, many class rates were based on "grouping points" in which the question of mileage was an important factor but not always controlling in the construction of class rates. Also prior to this adjustment, some class rate scales lacked uniformity in basic rate-making principles and in some cases the various scales were inconsistent in their relation to each other. In this adjustment the Commission has not entirely abandoned the principles of class rate structure employed in the past. However, they have attemped to provide uniformity and also have established a definite percentage relationship that each class should bear to the first-class rate of the scale. In the past few years, the tendency of the Interstate Commerce Commission has been to give the question of mileage greater consideration as a factor of rate construction.

They have prescribed maximum rates for various distances in the various rate-making territories, and the carriers are authorized to establish the new set of rates on lower bases than the maximum prescribed, if they consider that this action would be to their best interests. However, it is important that in so doing that the established percentage relationship of classes in the scale be preserved.

In the official classification territory—also known as eastern territory—the general effect of the adjustment is that the first four class rates will be increased and the fifth and sixth class rates decreased. However, there are many exceptions to this line-up. Another outstanding result of this adjustment is that the Rule 25 rating is no longer in effect and commodities for which this rating was provided in the past, will move at the same rates provided for third-class ratings. As an example of the effect of the revision, there is shown below the old and new rates which apply to Chicago, Illinois.

From		1	2	3	4	5	6	R26
Kalamazoo, Michigan	Old rates	63½	54	42½	32	22	18	34
	New Rates	64	54	45	32	22	18	35
Dayton, Ohio	Old Rates	79	67	53	39½	27	22	42½
	New Rates	82	70	57	41	29	23	45
York, Pa.	Old Rates	134	116½	91½	63	53½	44½	73
	New Rates	133	113	93	67	47	37	73

It will be observed that in the Kalamazoo scale the first, third and Rule 26 classes have been increased and the other classes remain unchanged. In the Dayton, Ohio scale, all of the classes are increased. In the York, Pennsylvania scale, the third and fourth classes are increased, Rule 26 remains the same, and the other classes have been decreased.

It is important that all shippers secure the tariffs in which they are interested so that they will know to what extent this adjustment will effect their transportation costs.

In Western Trunk Line Territory many commodity rates on paper exist and they have not been disturbed directly by this adjustment. However, many changes are constantly being made in commodity rates, and it is important that all shippers carefully review the new tariffs and supplements thereto in the territories of interest to them so that they will know just how they will be effected by the various changes. One of the objects of the decision rendered in the Western Trunk Line class rate case was to provide additional revenue for the carriers in this territory. The record in this proceeding clearly indicated that many of the carriers were operating at a loss while the earnings of most of the others were inadequate and below the level to which they are entitled. In its annual report for 1930, the Interstate Commerce Commission stated that it was roughly estimated that the rates authorized in the western class-rate case would yield from ten million to 12 million dollars increase in revenue per year. However, the interested carriers disagree with this opinion and have petitioned the Interstate Commerce Commission for re-opening, re-hearing and modification of the report and order. In their petition they point out that the decision was made in May, 1930, and that the adjustment prescribed is the result of a study of conditions that existed before that time and is based upon a record which does not reflect even remotely the conditions prevailing at the time the prescribed adjustment is to become effective. Many other petitions have also been filed by shippers protesting against the adjustment and it is indefinite at this time just what action will be taken on the various petitions.

It has been the intention of the Interstate Commerce Commission to have all class rates on a basis of equality. However, it would be impractical for the carriers to establish the same scale of rates in all rate-making territories because of the difference in railroad operating conditions and also because of the difference in the cost of the service rendered. It is also intended eventually to cancel all commodity rates and to provide a certain percentage of the first class rate to apply in place of the commodity rates now in effect. The purpose of this adjustment is not to increase freight charges on commodities for which commodity rates are now provided, but merely to have such rates represent a given percentage of the first-class rate in the class-rate scale that applies between the points involved. However, it will be sometime before this complete revision takes place, and for the present the commodity rates will remain in effect. This does not mean that every commodity rate published will be continued indefinitely and it does not restrict the carriers from making certain changes in commodity rates at this time.

Stop-off-in-Transit Privilege Extended

Effective October 1, the carriers in Eastern Trunk Line territory have permitted carload traffic to be stopped in transit for partial loading or unloading. Also effective January 1, the same privilege will be permitted in New England territory.

The through rate will apply from point of origin to final destination plus a charge of $10.00 for each stop-off which charge applies only in Eastern Trunk Line and New England territories. This privilege has existed for sometime in Central Freight Association territory, where the stop-off charge is $6.30 per car.

Freight rates on carload shipments on scrap or waste paper between points in the Southwest and Kansas-Missouri territory and between points within those territories were the subject of a recent hearing before the Interstate Commerce Commission. The carriers proposed to establish a rate of 20

per cent of the first-class rate. In I & S docket, No. 3497, the Commission ordered the tariffs quoting this basis cancelled. Upon further consideration the Commission found that the carriers proposal was justified and has authorized the railroads to make rates 20 per cent of the corresponding first-class rates, minimum 30,000 lb., subject to rule 34.

More than 20 months have passed by without a lost-time accident in the attempt of the Interlake Pulp & Paper Co., Appleton, Wisconsin, to make a new safety record. The dangerous wood room leads with 32,491 man days to its credit without a lost-time injury. Another subsidiary of the Consolidated Water Power & Paper Co., the mill at Stevens

The Paper Industry Safety Contest

July 1 to October 31 (Cumulative)

Perfect Scores in 21 Mills

PERFECT SCORES

Division I — Paper and Pulp Mills

	ENTRANT	MILL	LOCATION
GROUP A			
GROUP B	Champion Coated Paper Co.	No. 1	Hamilton, Ohio
	Nekoosa-Edwards Paper Co.	Port Edwards	Wisconsin
	Canada Power & Paper Co.	Laurentide Div.	Grand Mere, Que., Can.
GROUP C	Della Paper & Pulp Co.	Eau Claire	Wisconsin
	Pioneer Paper Co.	Los Angeles	California
	Cornell Wood Products Co.	Cornell	Wisconsin
	Strathmore Paper Co.	West Springfield	Massachusetts
	International Paper Co.	Montague	Turners Falls, Mass.
	Cons. Water Power & Paper Co.	Appleton	Wisconsin
	Kimberly-Clark Corp.	Lakeview	Neenah, Wis.
	U. S. Envelope Co.	Morgan Paper Div.	Litits, Pa.
GROUP D	Continental Paper & Bag Corp.	Ashland	New Hampshire
	International Paper Co.	Livermore Falls	Maine
	U. S. Gypsum Co.	No. Kansas City	Missouri
	Hollingsworth & Whitney Co.	Madison	Maine
	International Paper Co.	Riley	Maine
	U. S. Gypsum Co.	Gypsum	Ohio
	Division II — Remanufacturing		
	*Oxford Paper Co.	No. 2	Rumford, Maine
	Cons. Water Power & Paper Co.	Stevens Point	Wisconsin
	Kimberly-Clark Corp.	Atlas	Appleton, Wis.
	Bemis Bros. Bag Co.	E. Pepperell	Massachusetts

(*Mill No. 2 of the Oxford Paper Co up to this month has been reporting with the Mill No. 1)

IMPERFECT SCORES — Division I

	Key	Rank	Points Credit	Points Debit
GROUP A	PA-10	1	928.320	
	PA- 2	2	772.352	
	PA- 6	3	744.560	
	PA-11	4	694.288	
	PA- 3	5	605.696	
	PA- 5	6	217.040	
	PA- 7	7	159.696	
	PA- 1	8	77.536	
	PA-12	9		206.624
GROUP B	PB-16	4	898.128	
	PB-19	5	878.224	
	PB-14	6	850.528	
	PB-23	7	797.712	
	PB-15	8	759.264	
	PB- 9	9	758.528	
	PB-24	10	687.552	
	PB-30	11	658.592	
	PB-20	12	632.096	
	PB- 1	13	598.000	
	PB-17	14	586.320	
	PB-13	15	567.936	
	PB- 4	16	495.552	
	PB-14	17	471.984	
	PB- 8	18	360.096	
	PB-21	19	285.584	
	PB-25	20	223.376	
	PB- 8	21	13.440	
	PB- 3	22		29.600
	PB- 2	23		250.864
	PB-12	24		363.920
	PB-10	25		836.864
	PB- 6	26		855.264
	PB- 8	27		1,238.960
	PB- 7	28		1,785.808
	Division II			
	RA- 1	5	949.696	
	RC- 9	6	760.560	
	RC- 5	7	519.392	
	RC- 3		405.280	
	RC- 8		386.736	
	RC- 2		315.888	
	RC- 6		188.656	
	RD- 4		148.928	
	RD- 1			24.464
	RD- 3			302.224
	RB- 1			422.016
	RC-11			973.136

	Key	Rank	Points Credit	Points Debit
GROUP C	PC-50	9	844.432	
	PC-33	10	805.104	
	PC-25	11	766.320	
	PC-10	12	758.480	
	PC-36	13	714.992	
	PC-35	14	682.848	
	PC-11	15	661.616	
	PC-18	16	658.288	
	PC-52	17	625.376	
	PC-38	18	577.360	
	PC- 9	19	527.584	
	PC-14	20	475.920	
	PC-12	21	294.800	
	PC-31	22	135.200	
	PC-37	23	97.504	
	PC-49	24	92.672	
	PC-39	25	45.808	
	PC- 3	26	20.272	
	PC- 2	27		63.376
	PC-42	28		83.176
	PC-19	29		141.216
	PC-15	30		293.336
	PC- 7	31		321.392
	PC-28	32		328.368
	PC- 4	33		421.776
	PC-30	34		432.800
	PC-57	35		505.520
	PC-27	36		584.800
	PC-53	37		689.776
	PC-56	38		889.232
	PC-13	39		1,187.872
	*PC-40	40		1,189.696
	PC- 5	41		1,375.760
	PC- 6	42		1,572.080
	PC-17	43		1,629.280
	PC-58	44		1,907.344
	PC-47	45		2,775.568
GROUP D	PC-45	7	239.808	
	PD-12	8		754.224
	PD- 2	9		978.144
	PD-10	10		1,085.536
	PD- 4	11		1,219.936

(*) No September report
No October report: PC-30, 21, 43, 44
No Aug. or Oct. report: PC-55
Withdrawn: PB-11, 22, 26, 28,29 PC-22, 26, 29, 41, 54 PD-3, 5, 11 RC-4, 7 and RD-2

Brennan on Committee at Large

In reporting the names of Members at Large for the Paper and Pulp Section of the National Safety Council for 1932, the name of W. J. Brennan was omitted from the list of officers and committees announced on page 992 of the November issue of THE PAPER INDUSTRY.

Although Mr. Brennan has severed his connection with the industry and is no longer engaged in work directly connected with the Paper and Pulp Section, as past president of the Section, he becomes a Member at Large, and the published report should have included his name.

Chairman Plzak Working on Plan for Community Safety

J. J. Plzak, general chairman of the Paper and Pulp Section of the National Safety Council, has announced that he is preparing an outline for some definite work relating to home and community safety. As soon as Mr. Plzak's plan is completed, an announcement will be published.

At the close of the Paper and Pulp sectional meetings at the National Safety Congress in Chicago, Mr. Plzak made a plea for special activity in this direction. It is regretted that Mr. Plzak's remarks which appeared on page 998 of the November issue of this magazine were inadvertently credited to W. J. Brennan, retiring chairman.

Safety addresses were made at Rhinelander and Stevens Point, Wisconsin, during November by W. E. Darling, of Cincinnati, Ohio, who was stricken blind by an industrial accident. Large numbers of paper mill workers heard his plea for caution.

Point, is also making a name for itself with more than 14 consecutive safe months on record.

S. Ferenczi Retires

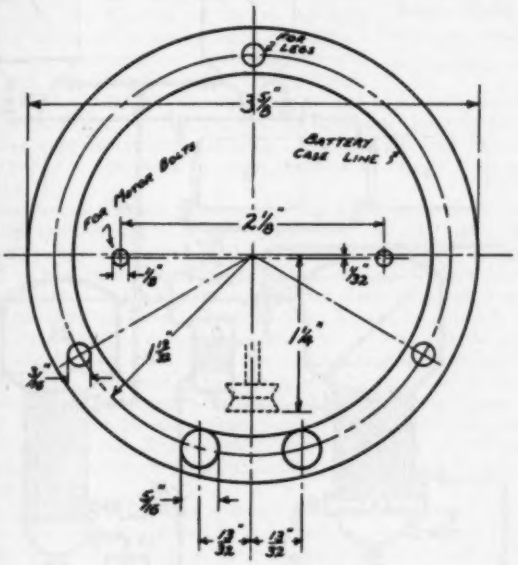
On the eve of his 70th birthday, Siegmund Ferenczi, for many years chief editor of the **Papier-Zeitung** and **Zellstoff und Papier**, of Berlin, has retired and his place has been taken by Dr. A. St. Klein. While Mr. Ferenczi has relinquished his active duties on both publications, his services as consultant and contributor will still be available. He became associated with the **Papier Zeitung** in 1895 during the lifetime of its founder, the late Carl Hofmann, author of the well-known textbook on papermaking. Dr. A. St. Klein, who has assumed the direction of the publications as editor-in-chief, is well-known in the United States as a contributor to the periodicals of the paper industry both of this country and of Europe. He has had an excellent training in the theory and practice of papermaking and is a member of the Technical Association of the Pulp and Paper Industry.

An Inexpensive Electric Psychrometer

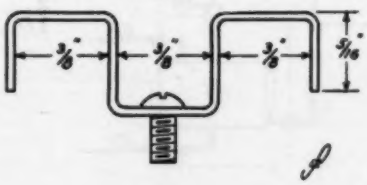
D. S. DAVIS
Appleton Vocational School, Appleton, Wis.

HYGROMETRIC measurements are among the common determinations made by the paper mill chemist and engineer since such data are so useful in testing the operation of humidifiers and heat interchangers and in maintaining proper humidity conditions at the dry end of the paper machine, at the lay-boys, in the finishing and storage rooms and in the constant humidity room which is now found in every well-equipped paper testing laboratory.

The most convenient method for the determination of the humidity of air is by means of wet and dry bulb thermometry, making use of the familiar sling psychrometer, or more



BOTTOM PLATE
Figure 2



CLAMP
Figure 2

rarely, some type of motor-driven psychrometer drawing power from a lighting circuit. Where a large number of tests are to be made at short intervals in a variety of locations neither the sling nor the lighting circuit type is entirely satisfactory, the former because it is so irksome to operate and the latter because of its dependence upon proximity to power outlets.

It is believed that the following design of a portable electric psychrometer operated by a single dry cell may be of interest to paper mill chemists and engineers. While no great originality is claimed for the design as a whole the use of several parts already well-known and easily obtained appears to be new.

The wooden base of an Ajax motor (A in Fig. 1) is removed and the motor is attached by bolts through a brass bottom plate (B) to the battery case (C) which is part of the standard bicycle lighting equipment, containing an ordinary 30-ampere dry cell, and which is fitted with a wire handle (D). A fan (E) cut out of tin plate is soldered to the motor pulley, and air of the correct velocity is thus supplied to the wet and dry bulb thermometers (F) and (G) respectively. The wet bulb thermometer is connected by a cotton wick (H) to the water reservoir (I) which is an in-

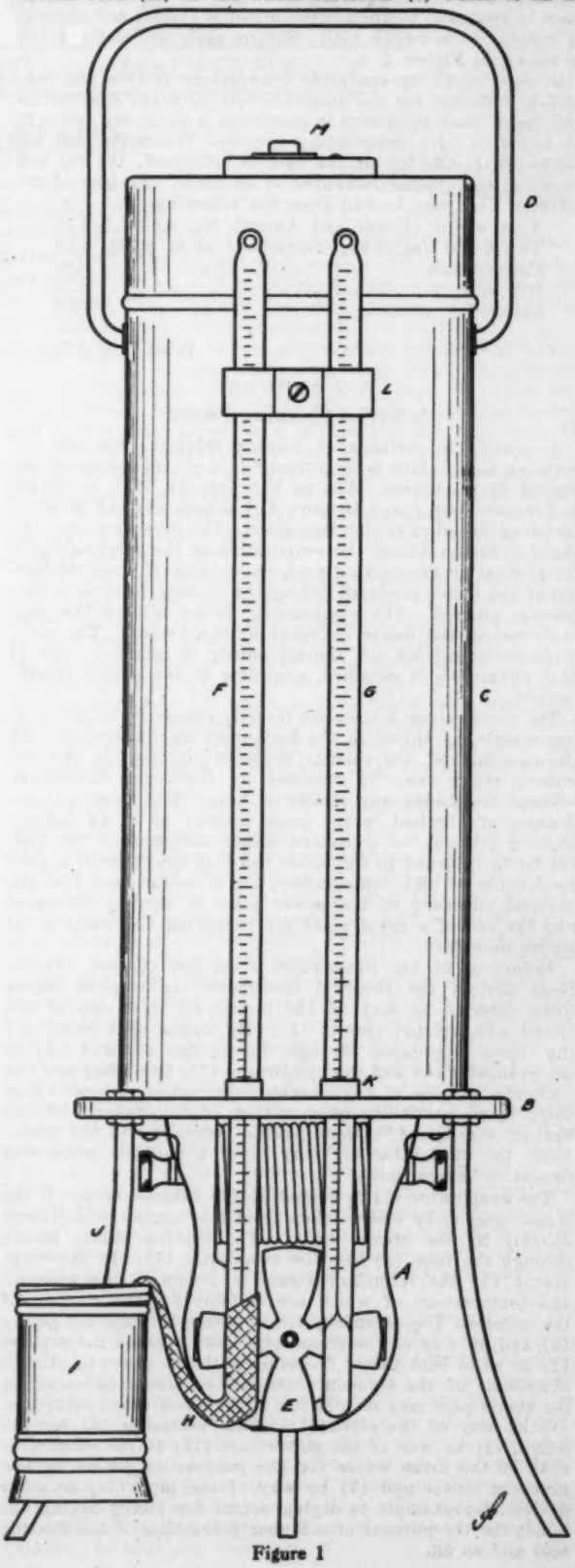


Figure 1

expensive salt-cellar with the top removed, and which is soldered to one of the legs (J) attached to the bottom plate. Short sections of rubber tubing (K) serve to support the thermometers on the bottom plate while the clamp (L) holds them in a vertical position. The motor is started and stopped by means of the switch (M). Bottom plate and clamp detail is shown in Figure 2.

In most cases, an operating time of one minute and one-half is sufficient for the thermometers to reach equilibrium and under such intermittent conditions a good dry cell will be found to give satisfactory service. When the cell becomes weak, the top of the case is lifted off, the old cell removed, and another is slipped in its place. An idea of the material cost may be had from the following:

Ajax motor (Eimer and Amend, No. 4,638)	$ 2.75
Two 0-220 deg. Fahr. thermometers at $0.90	1.80
Battery case	0.90
Dry cell	0.25
Salt-cellar	0.05
Total	$ 5.75

A Soviet Cooking Patent

A novelty in methods of cooking sulphite pulp and recovering heat values is to be found in a patent issued by the United States Patent Office on February 17, 1931, to Sergei I. Tschuwikowsky and Grigory I. Liachovetzky, of Moscow, Union of Socialist Soviet Republics. The invention uses the vapor produced during the evaporation of the sulphite liquor for preheating the cooking acid, the cooking and the thickening of the liquor produced during the cooking forming a continuous process. The evaporating device utilizes the heat contained in the liquor delivered by the cookers. The processes being carried out simultaneously, a common cycle of heat circulation is obtained, according to the patent specifications.

The evaporating devices are directly connected to the cooking vessels, as shown in the accompanying illustration. By the new method, the volatile products contained in the secondary steam may be obtained by fractional distillation, without consuming any additional heat. The losses of condensate are limited in the same manner as in an indirect cooking process, the consumed steam coming from the boilers being returned to the boiler house in the form of a pure condensate of high temperature. It is represented that the thermal efficiency of the power plant is thereby increased and the use of a great plant for preparing the water is no longer necessary.

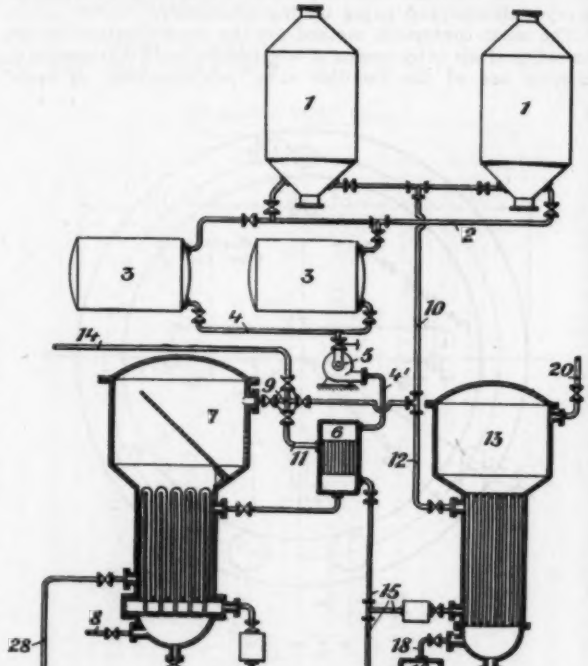
Referring to the illustration, from the cookers (1)—or from devices for chemical treatment—the sulphite liquor flows directly by way of the piping (2) into one of the closed and isolated vessels (3). By means of a pump (5) the liquor is pumped through the pipings (4) and (4') to the preheater (6) and the evaporator (7). The latter and the preheater may be of any suitable construction, provided that there is no possibility of a mixing of the liquor with the heating steam and its condensate. According to the conditions, the evaporator (7) may be of a multiple effect and consist of several units.

The evaporator (7) is heated by the exhaust steam of the steam engine, by steam taken from this engine or delivered directly by the steam boiler. The heating steam passes through the tube (8) into the evaporator (7). In the evaporator (7) the secondary steam is produced, the pressure and temperature of which are suitable for the cooking of the cellulose. The secondary steam passes through the piping (9) and by way of the steam pipe (10) reaches the cookers (1) so as to heat them. Together with the above mentioned abundance of the secondary steam, the steam delivered by the steam pipe may also be led to the other consumers; i. e., (1) by way of the pipe (11) to the preheater (6) for the liquor, (2) by way of the steam pipe (12) to the evaporator (13) of the fresh water for the purpose of producing low pressure steam and (3) by way of the pipe (14) to other devices, for example to drying drums for finally drying the liquor for the purpose of a higher preheating of the cooking acid and so on.

The condensate of the secondary steam passes from the evaporator (13) and from the preheater (6) by way of pipings (15) to the preheater (16) for the fresh water. The fresh water enters the preheater (16) by the tube (17) and is led from there by the pipe (18) to the preheater (13).

After leaving the preheater (16), the cooled condensate of the secondary steam passes, by way of the piping (19), into the working plant. Before this steam is used, the volatile products may be separated by subjecting this steam to a fractional distillation.

From the evaporator (13) for the fresh water, the low pressure steam passes through the steam pipe (20) into a



drying chamber, a heating system and other devices of the plant and may be used as an additional distillate for the boiler feeding.

The condensate of the heating steam which is led by the steam pipe (8) to the evaporator (7) is passed by the tube (21) to the storage tank (22). This tank (22) may be provided with an automatically operating device (26) by which the purity of the condensate is controlled.

The pure condensate passes from the storage tank (22), by way of the piping (23), into the boiler house and serves as feed water for the boiler. In case of contamination, the condensate leaves the storage tank (22) by way of the pipe (24) and is used in the plant as hot water. Before the condensate leaves the tank (22) through the pipe (24), the heat of the condensate may be utilized as low pressure steam which is led away from the tank (22) by the pipe (25). This steam may be used in all cases in which an absolute purity is not required.

The thickened liquor is led by the tube (28) into the tank (27).

Four claims are made covering the various uses to which the apparatus may be put.

POWER

GENERATION - UTILIZATION - MAINTENANCE

By W. S. JOULE

This section turns the searchlight upon power and its allied problems. It shows up big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

Deposits on Turbine Blading

BECAUSE the deposits which grow upon the blading of steam turbines lowers efficiency, tends to cause an unbalance and necessitates a shut-down and cleaning, considerable attention has been given to this matter. Recently, of 26 central stations reporting to the N.E.L.A., six reported no deposits, the balance reporting experience with deposits. Of these 20, only two said they found it necessary to clean the bladings more than once a year.

The deposits upon turbine blading seem to collect more rapidly and heavier in the high-pressure end of the turbine, although they also occur in the intermediate stages. In some cases it has been found on all blades, though thicker on the high-pressure end. The most common deposit appears as a thin, powdery material, although hard scale-like deposits are also experienced. Also, the thickness to which deposits occur vary widely. In some cases the deposit is hardly enough to be noticeable while in other cases the thickness is sufficient to entirely fill the space between the blades at their bases. In some cases deposits have been found in the throttle and control valves, also. The solubility of the deposit varies quite widely, ranging from approximately 5.4 per cent to almost 100 per cent.

Analyses show that the deposits are composed very largely of the chemicals employed in the internal treatment of boiler water. Samples taken of the deposits which collected on the blading in a plant where it was necessary to clean turbine blades several times per year is as follows:

Probable Combinations

Sodium Chloride	29.75%
Sodium Carbonate	22.25%
Sodium Sulphate	20.41%
Oxides Iron and Aluminum	8.50%
Silicious Matter	8.30%
Sodium Hydrate	7.96%
Calcium Carbonate	1.62%
Magnesium Hydrate	0.58%
Moisture	0.32%
Loss on Ignition	0.12%

According to the report of the twenty companies, the above is a typical soluble deposit. The analysis of a deposit of low solubility was found to be as follows:

Ignition Loss	43.0%
Insoluble in Acid	22.6%
Magnesium Oxide	14.4%
Iron Oxide	11.9%
Calcium Oxide	7.0%
Unaccounted for	1.1%
	100.0%

No decision has been made as to how these deposits occur. It is thought, however, that the soluble components are carried over into the superheater during times of priming. The deposits are there dried to a powder and are then carried into the turbine. Since some of the soluble components of the deposits have a fusion point below the steam temperature, they are probably carried into the turbine in a molten stage. When the turbine cools, the molten constituents solidify, adhering to the blading so as to act as a binder to other parts of the deposits brought over. It is suspected that some of the insoluble matter will be changed from a soluble material by the heat or by action of some of the other components.

Where deposits are not suspected, suspicion may be aroused where the pressure through the stages increases, while the capacity of the turbine decreases, although this will be very gradual, of course, and so will occur only over a considerable lapse of time. In one case, a reduction of 33⅓ per cent in capacity was reported, while the average was reported to be approximately 10 per cent. In one case the loss of only 4 per cent in two years was found, and without the cleaning of blading. The increase in the first-stage pressure was found to range from 5 to 50 lb. per sq. in.

It would seem, therefore, although nothing is said about this in the report, that more care should be given to boiler water treatment and greater precaution should be taken to prevent priming. If some statement had been made to show the class of system or type of water softening employed in each instance, it might have been possible to reach a more definite conclusion. It would most certainly seem that those plants having a special amount of trouble should give close study to their water treatment problems, for here, assuredly, lies the solution of a difficult and costly operating problem.

Safeguarding Electrical Machinery by Grounding

WHEN entrained moisture in the soil dries out, "earths" or grounds have a higher resistance, unless thoroughly grounded. Where the frame of a machine is grounded to protect the installation or protect life, it is very important, of course, that the ground have a low resistance and be as immune as possible from resistance fluctuation the year 'round. There are two schools of thought in this matter, some believing that the frames of electrical machinery should be isolated or insulated, and rubber mats, wooden frames, etc., built around the machines so as to protect the attendant, while others believed that solid grounding is preferable.

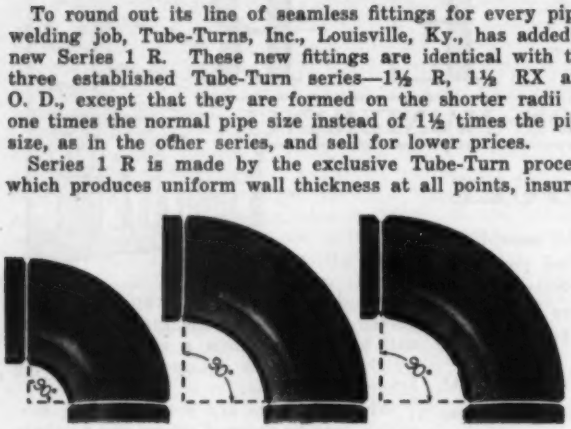
Those opposed to solid grounding usually object on the score that a solid ground results in such a heavy current rush in case of trouble that extensive damage will be done to the equipment, so causing a more wide-spread injury as well as creating a more violent disturbance to the system. Those who recommended that frames of electrical equipment be earthed through zero resistance or low resistance grounds, believe that it is better to get rid of the trouble as soon as possible than to have it held over, to cause surges, fires, the falling out of step of equipment with the enormous magnetic stresses and dielectric break-downs which so often occur as the result of transient surges.

Many companies obtain the advantages of isolation or insulation with the advantages of a solid earth by means of an overload current relay connected in circuit with the machine ground. The machine is earthed to a solid copper conductor connected in series with an overload relay. In the case of trouble, there is practically no resistance to the flow of current from machine frame to earth. The relay is set, however, to trip the main circuit breakers directly a small current flows from the machine frame to earth, so cutting off the supply before extensive damage can be done. The cost of this is low while it enables the advantages of a solid ground to be obtained without any objection.

A New Series of Tube-Turns

To round out its line of seamless fittings for every pipe-welding job, Tube-Turns, Inc., Louisville, Ky., has added a new Series 1 R. These new fittings are identical with the three established Tube-Turn series—1½ R, 1½ RX and O. D., except that they are formed on the shorter radii of one times the normal pipe size instead of 1½ times the pipe size, as in the other series, and sell for lower prices.

Series 1 R is made by the exclusive Tube-Turn process which produces uniform wall thickness at all points, insures



uniform radius and eliminates all locked-in stress in the metal. It also has the same outside and inside diameter and the same wall thickness and wall tolerance as the pipe with which it is used. This, together with the fact that it is made of the same material is said to greatly facilitate lining up and welding.

Series 1 R Tube-Turns are made in 90 deg. elbows, in standard iron pipe sizes from 2-inch through 12-inch. Their addition to the Tube-Turn line, according to the announcement, affords 45 deg., 90 deg. and 180 deg. return-type fittings for welding in sizes ¾-inch through 20-inch, and in virtually all the weights required by modern piping. Series 1 R Tube-Turns are carried in stock by all the company's distributors. Descriptive literature and prices on request.

A White Bituminous Paint

Bituminous coatings have for many years been recognized as highly effective mediums for resisting the ravages of rust and corrosion from water, acid and alkali. Not to be confused with the ordinary oil-base paints, these coatings have been quite commonly used as protective mediums for iron and steel, where black has not been an objectionable color.

Considerable progress has been made in recent years through careful research to develop this wonderful rust and corrosion resistant for greater and more varied uses. Sleight Bituminous Products Company of Baltimore, Md., have discovered a method of making bituminous coatings in all colors and retaining all of the resistant qualities that exist in the basic black product.

These colors, including white, find many applications in the pulp and paper industry. Bleach tanks, concrete stock chests, water tanks and all concrete, iron and steel equipment where rust and corrosion are to be avoided, offer places for application of this protective material.

In a recent test made at the Canadian Forest Products Laboratory, Montreal, the white bituminous coating, known as Dairy White, manufactured by the Sleight Bituminous Products Company, withstood effectively a drastic treatment to determine its resistance to bleach liquors. The coating can be applied successfully to damp surfaces and even to surfaces under water with excellent results. A surface painted over with it can be patched without any previous drying of the part.

New Electro-Hydraulic Transmission

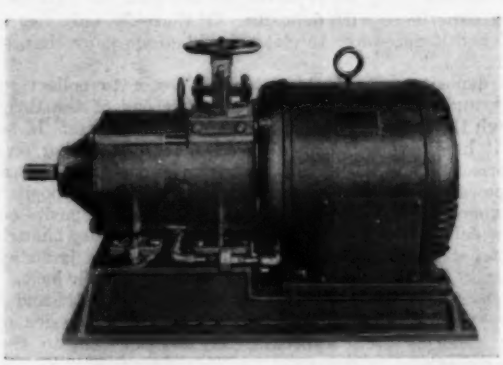
For varying speed changes desirable for certain types of process machinery in pulp and paper mills, power plants and in the manufacture of paper products, the American Engineering Co., of Philadelphia, has developed a compact, electro-hydraulic, variable speed transmission, capable of delivering any speed from zero up to the maximum of the unit.

At the present, 5 and 15 hp. units are being manufactured. Later on, the company announces, other sizes will probably be made including 3 and 10 hp. units.

With high starting torque, the transmission will start any machine it will run, developing at maximum speed the rated horsepower of the unit continuously. An across-the-line starter with push button station starts the transmission. Power is developed hydraulically and is smooth and pulsationless.

In the picture the hydraulic motor is at the left, hydraulic pump next to it in the middle, and electric motor at the right. They are all mounted on a single bed plate reservoir which contains the oil used in the system.

The hydraulic pump and motor are of the Hele-Shaw design and are similar in construction except that the motor



has a fixed stroke while the stroke of the pump may be varied from minimum to maximum. Pump and motor are multi-

High Speed Motors Driving Jordans through Speed Reducers

Four Link-Belt herringbone speed reducers operating jordans in mill of Riegel Paper Corp., Milford, N. J. Reduction ratio 1.33 to 1. The Reducers are equipped with circulating oil pumps and cooling coils

cylindered and handle the fluid in a smooth, continuous stream.

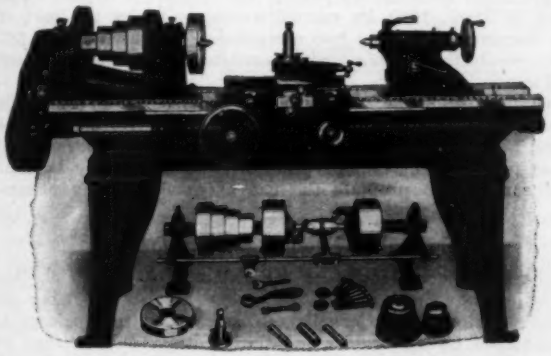
The electric motor drives the pump shaft at a constant speed. Oil is delivered by the pump to the hydraulic motor at a rate corresponding to the stroke of the pump, regulated by the handwheel shown, or any other desirable hand or automatic control. This is the only point of regulation, for there are no controls on the electric or hydraulic motors. Through the handwheel, the speed of the hydraulic motor can be varied all the way from zero to maximum in either a forward or reverse direction.

The pump end of the electric motor shaft is fitted with a fan. Oil in the system passes through finned tubing surrounding the fan, consequently its temperature is maintained at a degree commensurate with efficient operation.

New Sixteen-Inch Lathe

A new general-purpose lathe especially designed for light manufacturing and maintenance shop work has just been placed on the market by the South Bend Lathe Works, South Bend, Indiana.

This new lathe, called the Sixteen-Inch Junior, has a 16 inch swing which permits the handling of large diameter



work. As it is available in bed lengths of from six to 12 feet, this equipment unit will also handle work of unusual length. There has been a simplification in construction and design and the lathe has been relieved of non-essential, expensive features not needed in general machine shop work.

It may be had in countershaft drive or in various types of motor drive to fit the needs of any shop. Safety, economy and convenience of operation are features pointed out by the manufacturer. Full particulars and mechanical description are given in the company's new general catalogue No. 92, recently issued.

Boiler Firm Offers to Accept Unit Responsibility

The Springfield Boiler Co., Springfield, Ill., announces that it is prepared to furnish and accept complete responsibility on contracts covering complete steam generating units, including Springfield boilers and water walls and permitting purchaser to make his own selection of all auxiliary equipment.

The Springfield Boiler Co. was established in 1890 and has made steady progress for the entire 41 years of its existence. Its equipment has been installed in many of the leading utility and industrial plants of the country and many of the recent contracts received have been for complete unit installations.

The larger part of the company's business is in repeat orders.

Registered as approved pulp mill chemists by the joint committee on November 7 were Harvey P. Cannon, Container Corporation of America, Philadelphia Division, Manayunk, Pa., and N. W. Coster, Puget Sound Pulp & Timber Co., Everett, Wash.

New Catalogues and Publications

Armstrong Machine Works, Three Rivers, Mich.—Receipt is acknowledged of copy of the first edition of this company's new house organ called The Armstrong Trap Magazine. The purpose of the magazine is to bring before readers the latest pictures and reports of developments, improvements, methods and solutions of typical trap problems. Each issue will carry a feature article dealing with the proper application of traps to specific classes of equipment. Armstrong representatives will contribute the editorial material. Copies may be had by addressing the company.

Bristol Company, Waterbury, Conn.—In a catalogue No. 4001, this company presents its newest development in temperature and pressure control instruments, Bristol's Free Vane Air Operated Recorder Controller. The principle employed is claimed to be a new departure in pneumatic control, permitting one actuating element to move a penarm making a chart record, and to operate a control system, and, furthermore, the Free Vane principle of control does not require any work to be done by the actuating element. Consequently, the recording mechanism is unimpeded and gives a true record of the temperature or pressure.

Enterprise Oil Burner Co., San Francisco, Calif.—A new catalogue features a number of improved types of oil burners. There are complete illustrations and details of the burners, with specifications and data on fuel consumption and vital heating statistics of interest to those using or specifying burners. It includes burners for application in power plants, where boilers are used, all types of industrial buildings, paper mills, homes and for marine service. The catalogue includes a description of a small new oil burner known as AAA, adaptable to all types of heating units requiring a limited amount of combustion. Copies upon request to the company at 2902—19th street, San Francisco.

Foster Dee Snell, Inc., 130 Clinton street, Brooklyn, New York—This firm of consulting chemists and engineers has issued a booklet of information on the analytical service that it is capable of giving, a service which includes development of new products and research, as well as surveys and supervision of manufacturing operations. The head of the organization, Dr. Foster Dee Snell, is well-known to chemists for his work on rayon. Prefacing an account of the various ways in which a manufacturing business may be benefited through the type of work conducted by Foster Dee Snell, Inc., is a fascinating dream story of an alchemist of the olden days.

Japan Paper Company, 109 East 31st street, New York, employs a most effective advertising appeal by sending to customers and prospective customers unusually fine specimens of handmade papers imported from Europe and the Orient. The latest specimen consists of an eight-page booklet, measuring 4 x 5 inches on Hayle handmade paper, entitled, "St. Martin or the Blessings of Rags." It is "a description of the way and manner of making paper," a facsimile reproduction of instructions for British Customs officers "employed in the Duties on Paper," bearing date of 1713. The booklet has been specially printed for Japan Company by Carl Purington Rollins, printer for Yale University, and is representative of early eighteenth century typography.

Fisher Governor Co., Marshalltown, Iowa—Fisher bulletin No. 70 covers the company's Series Type 4000 Pilot Operated Pressure Regulators, a new development just recently announced. This regulator controls reduced pressures, relief or back pressures and boiler pressure control by regulating the gas or oil fuel supply for steam, water, gas, oil, air and other fluids. The construction, installation and operation are thoroughly explained.

Reeves Pulley Co., Columbus, Ind.—Catalogue 99 is descriptive of Reeves variable speed transmissions. Special attention is called to pages 8, 9 and 10 of this catalogue, and a three-page spread showing 16 designs in the extensive Reeves line. Modern units and all recent developments in variable speed control are described in parts 2, 3 and 5 of the catalogue, copies of which can be obtained on request.

Stoker Manufacturers Association, Detroit, Mich.—A new 40-page Condensed Catalogue prepared by this association contains short descriptions and illustrations of stokers manufactured by the 14 member companies of the association. The stokers are grouped into the following classifications: multiple retort underfeed, single retort underfeed, chain grate and overfeed. The text is limited to engineering descriptions of the various types of machines, and a supplementary section on engineering data relating to modern stoker practice is included.

It is an interesting co-incident that the association is located at the Foot of Walker street, Detroit, which was the location of the Murphy Stoker Co., manufacturers of the first stoker to be marketed successfully. The Murphy stoker is now made by the Riley Stoker Corp. and is described in this catalogue.

United States Gypsum Co., Chicago—This company has just issued a new catalogue setting forth industrial uses for Red Top Expanded Metal. The usability of this expanded metal is found in the fact that the large sheets can be cut in any direction with raveling strands. The catalogue illustrates and calls attention to the modern and economical method of building open partitions, efficient window and door guards, machine guards that will lower insurance premiums and makes suggestions for bettering manufactured products.

Wagner Electric Co., St. Louis, Mo.—Small Motors is the subject of a new 30-page bulletin issued by this company. The bulletin is divided into eight parts describing single-phase, polyphase, and direct-current motors in fractional-horsepower ratings. Wagner construction features are profusely illustrated and described in detail. This bulletin is in loose-leaf form and is known as No. 167.

MICHIGAN

Superintendents Hear Lecture on Japan

At the regular November dinner meeting of the Michigan Division of the Superintendents Association, Frank Eilers of the Orr Felt & Blanket Co. gave an illustrated lecture on Japan. The pictures used by Mr. Eilers were taken by him while on a business trip to Japan last spring.

An important part of the pictures shown illustrated paper mills of Japan. The Japanese are very progressive and their old mills are rapidly being replaced with the most modern type of mills and paper machinery.

To create an oriental atmosphere, Mr. Eilers passed out chop-sticks before dinner was served and explained their use. He also told a great deal of the customs in Japan and stated that English is a required subject in the grade schools of that country.

Kalamazoo T.A.P.P.I. Institutes Trust Fund

At the November meeting of the Kalamazoo Section of Tappi, John Wood, who acted as treasurer of the Fall convention committee gave a complete report of receipts and expenditures for the convention. This report was most gratifying and showed a net balance on hand of $987.61. This amount has been placed in a trust fund to be loaned to students who have completed at least two years of college and who have definite plans to enter the paper field. It is the plan of the local section to increase this fund from time to time as opportunities arise.

At this meeting plans were started for the fifth Interstate meeting which will be held as formerly in co-operation with the Cost Association next May. The committee for this meeting always consists of the officers of the two associations and one member from each. The representatives from the local section of Tappi are: M. D. Bardeen, W. Kent Kidder, H. R. Miller, officers, and E. F. Whittington.

The speaker of the evening was Carl Schneider, chief chemist of the Hawthorne Paper Company, Kalamazoo, who spoke on "Information for the Establishment of Pulp Specifications."

Mr. Schneider's talk was based on tests he has made of the four pulps used by the Hawthorne Company over a period of two and a half years, and he stated that they found the variation in pulp shipments from car to car from the same shipper are as great or greater than the difference between grades of pulp. He recommended setting up standards for the various grades of pulp to which the pulp manufacture would be compelled to adhere.

Mr. Egan of the Bulkley Dunton Company brought out in the discussion of Mr. Schneider's talk that specifications along this line had been set up in certain mills on the Pacific Coast, and that some of the mills out there are now making pulp which would come well within the tolerance suggested by Mr. Schneider. It was, however, Mr. Egan's opinion that such standards could not be worked out satisfactorily throughout the industry.

Chief Engineers Elect Officers

The outstanding feature of the December meeting of the Chief Engineers Club of Kalamazoo, was the election of officers. As a result of the election, the following officers were elected: President, Clarence Miller, Mac-Sim-Bar Paper Co., Otsego; vice-president, Chauncey M. Davis, Michigan Paper Co., Plainwell; secretary-treasurer, Arthur E. Woollam, manufacturer's agent, Kalamazoo.

Following the election, the meeting was addressed by Mr. Gutzwiller, formerly of the Brown Boveri Co., of Switzerland, now connected with Allis-Chalmers Co., who absorbed Brown Boveri and took over all patent rights owned by the company.

Mr. Gutzwiller gave an interesting talk on the Brown Boveri Rocking Rheostat, a special instrument developed by his company, which is used extensively in Europe and most other countries except the United States. There are, however, a few in use in this country. The Brown Boveri instrument as explained by Mr. Gutzwiller, involves absolutely no friction and the drop in voltage from one contact point to the next is very small and this eliminates arcing. The contact points for the resistance coils are built up in the form of an arc and the contactor is also in the same form and rocks against the resistance points the same as a chair rocking on the floor, providing the floor were curved almost the same as the rocker. The rocker arm is actuated by an aluminum shell which is built into an induction motor between the armature and the rotor. A slight change in voltage causes a torque in the aluminum shell which moves the rocker to higher or lower resistance. An overregulating feature is combined with this instrument which reduces the time consumed in correcting voltage. The interval is about one-fifth that used by the carbon pile regulator.

Frank M. Stephens Resigns from Bryant Paper Co.

Frank M. Stephens, for the past two and one-half years vice-president, sales manager and director of the Bryant Paper Company, Kalamazoo, Michigan, has resigned, effective as of December 15.

Mr. Stephens was formerly vice-president of the Seaman Paper Company, Chicago, having been connected with that organization for some 15 years. He joined the Bryant Company in April, 1929, by mutual arrangement on the part of the management of the two companies. His resignation follows closely that of Mr. Felix Pagenstecher, former president and general manager.

No definite announcement has yet been made as to his future activities. His years of study and experience in the manufacture and merchandising of printing papers, is a real asset to the industry and practically an assurance that he will continue to promote the use of good printing papers.

Cost and Technical Men Meet

The November meeting of the Kalamazoo Valley Cost Association was held at the Columbia hotel. Following an excellent dinner, Dr. Cornell, professor of political science at Kalamazoo College, addressed the meeting, and touched on the subject of commercial arbitration. Professor Cornell brought out some interesting points, and stressed the fact that business is gradually drawing away from court action, in favor of commercial arbitration, and gave a number of contributing reasons.

The second speaker was Neil Robertson, of the Kalamazoo Vegetable Parchment Company, who has done a great deal of work on the bleaching of pulp. Mr. Robertson stated that there are three factors affecting bleaching, (1) time, (2) concentration and (3) temperature. The early pulp makers did their bleaching at low temperatures and low consistencies and took a long time to get the desired results. Raising the consistency and holding the temperature the same will shorten the bleaching time very materially and increase the color.

Experiments have shown that at the beginning of the process, chlorination of the products takes place and uses about 40 per cent of the chlorine while the latter part of the process is oxidation and uses the balance of the chlorine. Due to the reaction in the chlorination stage being very rapid, it is best to perform this part at low consistencies to facilitate distribution of the chlorine. The second step or oxidation process is very slow and raising the consistency will speed this reaction and shorten the time. Best results are obtained by adding the chlorine as a gas to the stock and adding alkali later, using either lime or caustic.

Edward Rutz, superintendent of power for the Bryant Paper Co., Kalamazoo, has resigned to become City Manager of Kalamazoo. Mr. Rutz will take up his new duties December 15.

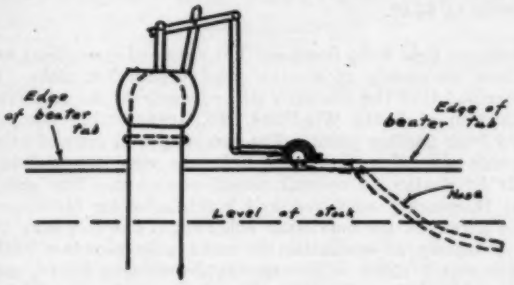
Nicolet Paper Co., DePere, Wis., has received its first shipment of Swedish pulp direct from Europe to its docks. The Steamer Mauritz arrived after a two months' journey bringing 1,400 tons in bales.

Practical Helps for the Mill Man

Thickness Control

THE thickness of the stock in a broke beater can be roughly controlled by the device shown in the sketch. In many modern mills, broke is run directly into the broke beater without being handled by laborers, and it is desirable to keep the consistency of the pulped paper fairly constant.

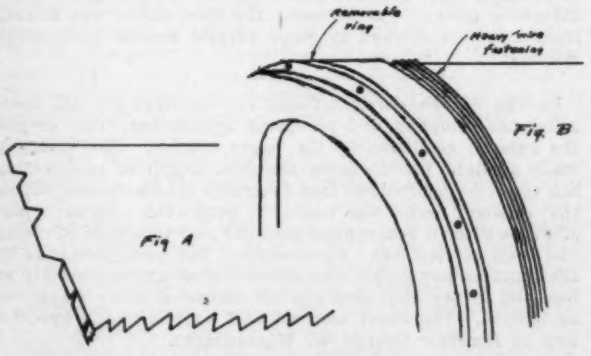
In the device shown, a rod is run across from one side of the beater trough to the other. At the middle point of this rod, a



short rod is attached at right angles and a piece of heavy rubber hose run out from this short rod. This piece of heavy hose should be long enough to run some distance out into the stock in the beater. The rod across the trough is arranged so as to turn freely, and is connected by links to a quick opening valve supplying white water—or fresh water if preferred. When the stock in the tub gets thin the hose sinks and shuts off water, and when the stuff gets thick the hose rises and puts on water.

Securing Edges of Corduroy Cloth

SECURING the edges of corduroy cloth when it is used for cylinder facings sometimes presents difficulties. Of course it can be held at the edges by simple staples of heavy wire pushed down through the cloth and caught and twisted around the rods of the cylinder mold. Where there is no riding ring—a device to take the weight of a heavy couch roll off of the



cylinder facing—the cloth can be caught under a removable ring. This removable ring is shown in Fig. B. This is a thin ring of metal which is bored with holes as shown, so that it can be screwed with slotted head screws into the end spider of the cylinder mold. In order to fold corduroy cloth over the edge of the spider to go under the ring, it will be necessary to cut the edge of the cloth as shown in Fig. A. To save a sketch, the ring is shown on the edge of cylinder mold having a riding ring, but actually a mold with a riding ring would not have a removable ring for securing the cylinder facing. Where this riding ring is used the device shown in Fig. B and noted on the sketch as "heavy wire fastening" is used to secure the edge of the cylinder facing. It consists simply of four or five turns of heavy winding wire, put on very tight and set up close to the riding ring. After this wire is put on, solder is run over and around the several strands, and helps to hold the whole business.

Acids Handled Safely

The importance of using proper acid handling equipment is attested by statistics on accidents. During a recent 12 months there were 219 serious acid injuries reported to the New York Industrial Commission.

An improved carboy tilter, designed to prevent such accidents and enable one man to safely truck, drain, and otherwise handle carboys of liquids, is announced by Schwenk Safety Device Corp., 27 Water street, New York, N. Y.

The new equipment is an improvement in that the carboy is elevated into the tilter by levers. The operator does not directly lift the carboy. The cradle wherein the carboy box rests provides support on three sides and the bottom so that there is no danger of the bottle dropping through the box though the wood be in bad condition.

Full control in pouring is had at all times. Every drop of fluid can be drained from the bottle. The unit has the approval of various safety organizations.

An Electric Band Tightener

A portable electric band tightener for box strapping has just been put on the market by The Stanley Works, New Britain, Conn. Among a number of distinctive features, it is said to materially speed up strapping operations. The tool is designed and adapted for large shipping units which require more than ordinary amount of tensioning. By setting the tool for the required pull, uniform tension is applied to each and every band, and adjustment either way is easily made. The company offers to demonstrate the equipment wherever requests are made for it.

The Container Corporation of America received at its Ogden plant in Chicago, 2,500 tons of Swedish pulp. This pulp came via the St. Lawrence river and Great Lakes, and was received at Chicago, November 12.

NEW ENGLAND

New England Mills Little Effected by Change in Rates

The freight rate adjustment in Official Classification territory which became effective on December 3 has no serious implications for New England paper mills, although as a general rule it will mean increased rates to New York City. Less carload traffic throughout the country, not only in New England, will bear a higher transportation cost but most sixth class (which is the paper class) rates from New England to middle western destinations will be at least slightly lower. Carload traffic in paper from New England to Cleveland and Pittsburgh, however, will be adjusted to a materially higher basis because of unduly favorable commodity rates now in existence to those cities. The new rates are based on a mileage block system and consequently are the same in either direction. This will place New England mills on an equality with those in Fox River Valley or Kalamazoo, for example, on shipments into their respective territories. The middle west stands to gain more by the adjustment, however, for New England has previously enjoyed a better relative basis of rates to cities in Central Freight Association territory.

Meantime, New England will continue to hold her 1¢ Canadian differential rates to C.F.A. territory.

Within New England rates will be slightly lower on carload traffic although like elsewhere the less carload traffic will bear a higher rate. Inasmuch as hardly any paper tonnage is moved l.c.l. in New England, the trucks having obtained this business, that portion of the adjustment has only academic interest. It does, however, emphasive the need for a new intermediate service between l.c.l. and carloads.

Typical changes under the adjustment from and in New England are as follows, the first rate being the present tariff the second, the tariff which was effective under the adjustment as of December 3. Fitchburg to Boston 14 and 12, to Worcester 13 and 11, Springfield 15¢ unchanged, Philadelphia 28.50 and 24¢, Philadelphia 28 and 29¢, Syracuse 28.50 and 23¢, Pittsburgh 30½ and 34¢, Cleveland 33.50 and 34¢, Chicago 47.50¢ and 42¢.

The sharp advance to the New York City markets from New England is due in large part to the fact that the carriers have succeeded in putting across their conception of the value of the service from Harlem river to Manhattan. Previously this was figured for rate making at seven "constructive" miles. Under the adjustment it becomes 40 miles.

Paper Trade Association Meets

The Boston Paper Trade Association held its annual fall meeting at the Exchange Club, Wednesday evening, November 18. President Albert R. Smith, Keith Paper Co., and association president presided at the short business session that followed a sumptuous dinner. Charles J. Brown of the J. P. Lewis Company, Beaver Falls, N. Y., was voted to special membership. A nominating committee headed by Col. C. S. Proctor was appointed to return nominations at the annual meeting in March.

The evening's speaker was John B. Kennedy, associate editor of Collier's, well-known as master of ceremonies in Collier's Radio Hour. His talk was inspirational, witty and withal decidedly heartening to members of a sick business world. Francis Ouimet, national amateur golf champion, was unavoidably detained in New York by fog which prevented his flight by airplane as planned.

Hundreds of freight cars are standing idle in New England ports loaded with imported wood pulp, according to a paper company traffic official. The carriers at Boston, it is understood, have granted 15 days free time in place of the former six days free time allowance on cars. Recently nominal storage in car charges were announced by the Boston & Maine R. R. Much of the pulp held here has been stored for months. It has adversely affected the spot market. Spot lots of unbleached sulphite have sold from 1.60-1.85¢, and bleached sulphite has sold from an extreme low of 2.10 to 2.30 for just fair grades of book pulp. Storing of pulp in cars instead of warehouses or docks is done to suit carrier's convenience. Normally demurrage would accrue.

A violent protest has arisen in New England industry against the $3 per car surcharge on coal as proposed by the I.C.C. This feeling has crystallized into action with the paper trade as usual being the leaders of the movement. The opposition is not against the $3 per car surcharge per se, but the double application of the charge where it is applied twice on coal from West Virginia to tidewater and then from New England ports to interior mills. Furthermore some of the largest New England mills who for their own reasons use small cars, including some of the newsprint plants, would stand an increase of 20¢ or more per ton, whereas the 100 ton cars largely used by the Norfolk & Western and C. & O. railroads would increase the cost per ton but 3¢ or a per car increase of $3.00.

Androscoggin Pulp Company has resumed operations under its new ownership at a very good production ratio. It is understood that the company will concentrate its groundwood production at South Windham, Me., transferring equipment there from another point. The company will expand as need requires according to A. G. McIntyre who has visited the trade in Boston on several recent occasions. The mill has been thoroughly surveyed and manufacturing facilities are to be arranged for maximum efficiency. The company turns out a variety of specialties in wood pulp boards. This includes march stock, milk cap, textile winding board, pasted plys and solid wood middles.

There was a slight gain in paper mill employment in 27 representative Massachusetts mills during the month of October according to the State Bureau of Labor and Industries.

North Shore Waste Paper Company, Salem, Mass., have purchased land from the Boston & Maine R. R. upon which they will erect a structure for the handling of waste.

The State of Massachusetts has purchased about 2,400 reams of machine finish book paper from Tileston & Hollingsworth Co. local manufacturer. The State is understood to have paid around 4.75¢. The paper was purchased in the open market, many firms bidding. Lowest prices were received from merchants bidding on western sheets, some as low as 4.30¢. The State, however, has formulated a policy of favoring local industry particularly where no great price difference exists. Furthermore, the local paper was known, liked and was stocked in large volume nearby for prompt delivery.

George W. Wheelwright Paper Co. receivers are still operating the company and prospects appear very fair despite the general condition of the paper market. The company made a slight profit during the first month of receivership but receivers pointed out that favorable circumstances helped, that a longer period was needed to guage the company's possibilities after a program of economy and improved efficiency had been carried out. The company has been permitted by the court to pay employees whose claims aggregated $10 or less and to pay that sum against claims of other employees or officers. The court also allowed payment of a specified sum to Receiver George W. Wheelwright.

The tariff is keeping out foreign papers. Boston printers have been trying to get tonnage of Finnish book paper which they used in large quantities prior to the Hawley Smoot tariff. It would undersell even present low book paper prices were it not for the duty. Meantime Finnish newsprint is offered in sheets at $52-$53 on the dock at Boston, rolls at $5 to $7 per ton less.

Rate Changes

Following rate changes have been docketed recently by the New England Freight Association: Wood pulp from La Tuque, Quebec, to East Walpole, Mass., present rate 39.50¢ per 100 pounds, proposed 36¢, same as formerly in effect.

Pulpwood rates from Lake Frontier, Daaquam and Camille, Quebec to New England points are reduced under a Canadian scale.

Rosin 50,000 lbs. c.l., minimum Boston to Stoneham, Mass., present 7¢, proposed 5¢ when received by water at Boston B. & M. R. R., and reshipped from Stoneham via same carrier.

Strawboard indented from Springfield to Shelton, Conn., present 18.50¢, proposed 16¢ motor truck competition.

Pulpwood from Canadian Pacific Railway Stations to Mechanicville, N. Y., via the C. P. Ry. Wells River, Vt. and B. & M. proposed rates same as via D. & H. via Rouses' Point plus 1¢ per 100 lbs.

Import newsprint paper not less than 60 per cent groundwood, rolls or otherwise packaged, 50,000 lbs. East Boston docks to Springfield, Mass., present 15¢ per 100 pounds, proposed 10¢ to meet motor truck competition.

Pulpwood 40,000 lbs. minimum from various Vermont points to Ondawa, Thomson and Trionda, N. Y., present 13¢, proposed 11¢ to meet motor truck competition.

C. W. Morrison sales manager of the Robert Gair Co., in New England will make his headquarters at the Haverhill mill in the future.

Separate sales organizations jointly using, however, the branch offices in various cities will in the future sell the converted lines of Z. & W. M. Crane Inc., of Dalton, Mass., and of the Eaton Crane & Pike. The decision is based upon the special knowledge and attention that is required in the distribution of Crane's converted papers. Part of Eaton Crane & Pike's mills at Pittsfield will be leased by the Z. & W. M. Crane Inc., organization for conversion of papetries, etc. Eaton Crane & Pike, however, will continue to convert Eaton Paper Co., lines.

Fine writing mills are meeting the needs of the times with many new part rag papers usually about 25 per cent rag which are moderate in cost. Conspicuous among these is Goshen Ledger placed on the market my Millers Falls Paper Co., to be distributed in Boston by two merchants. Its resale is 18.50¢.

New Use for Paper Bags

A big market looms for paper bags in the latest coal selling modes. Faced by competition from oil, gas and coke, anthracite companies are devising new marketing ideas. One of the most popular is the sale of coal in bags. New England dealers at present are selling nut anthracite in 25 pound bags to Boston grocery stores at $12.80 per ton, resale to the public is $14.50 per ton. These are strong kraft, (rarely rope) paper bags.

Lehigh Navigation & Coal Co., are devising a method of bagging coal at the mines in a kraft container with a waxed paper liner. This is to be sold to regular customers at $1 per ton premium. Bagged coal will obviate dust. Furnaces can be stoked with a bag of fuel at a time, eliminating shovels. The idea is spreading, breakage in transit is small. Up to now bagging has been done by dealers, the producing companies are now prepared to push the market themselves and the Lehigh Company has hopes of marketing 10,000,000 bags of coal in New England eventually. Requirements of various New England states as to weight of bags differs. Massachusetts is 25 pounds, Rhode Island less.

For the kraft paper or rope paper manufacturer who can devise a paper bag that will meet the requirement of strength necessary in a wool bag, a big future awaits. Boston Wool Trade Association is working hard on a plan to develop such a bag. The latest development is a woven type using kraft paper twine. The prime reason is to eliminate jute slivers which will not take dyes. Through a similarly successful effort the Boston Wool Trade Association has put across the paper twine idea. Ten years ago more than 50 per cent of the country's fleeces were tied together by growers with some fibered twine. To-day around 80 per cent or more use kraft paper twine.

New England papermakers have been quoted as low as 35¢ per 100 pounds freight rate on paper from New England ports to any port on the Pacific Coast by intercoastal steamship lines. This applies only on carload quantities. Rates on transatlantic lines to U. K. and Continental ports have been as low as 45¢ per 100 pounds.

❖ WISCONSIN ❖

Encouraging signs continue to thrust themselves to the forefront as the year draws to a close in the paper industry of Wisconsin. Operations have been fairly consistent everywhere, and considerable building has been in progress, in some cases to keep all employees on the pay-roll where production had to be curtailed.

Badger Reports Good Business

September, October and November were among the best months enjoyed by Badger Paper Mills, Inc., Peshtigo, Wis., a concern that grew out of a reorganization of the bankrupt Peshtigo Paper Co. three years ago. Orders are booked well ahead for waxed bread wrappers, kitchen paper and drawing paper, and the company is planning to add other specialties to diversify its line further.

Dividends have been paid regularly on preferred stock and in addition $127,500 has been paid off before maturity on an issue of first mortgage bonds totaling $400,000. Assets are now six to one against liabilities. E. A. Meyer is president and manager.

Fifty men have been added at Hummel & Downing Co., Milwaukee, paper box manufacturers, to take care of increased orders, according to John L. Barchard, president. Four six-hour shifts are used in the paper mill instead of three working eight hours, and other departments have cut their working day to eight hours in order to utilize a larger number of workers, and none of the employees has been laid off since the depression started.

Construction work will soon be finished on a two-story fireproof building 50 by 75 feet for the Escanaba Paper Co., Escanaba, Mich. It will be used for the manufacture of sheet newsprint in varied tints for a trade demand that will probably keep the mill operating at capacity, according to J. H. Slater, manager. The company also desires to avoid the intense competition in the roll newsprint field. A Hamblet duplex cutter and a single cutter, sizes 70 and 100 inches, and a eight-ton trimmer have been installed.

Construction work in progress since April on the new 600-foot power dam on the Fox river at Kaukauna, Wis., where several paper mills are located, has been completed. The dam, with its heavy concrete abutments and steel gates is ready to render the service formerly given by a wooden dam built early in the community's history. Only a small amount of filling along canal walls needs to be done. The dam was built by the Federal Government at a cost of approximately $100,000, although $130,000 had been appropriated for it.

Business volume of the Claybourn Process Corporation, Milwaukee, manufacturers of giant color presses for waxed paper and bread wrappers, has kept up so well the company will have a better year than 1930 and it will also exceed 1929, according to L. W. Claybourn, president. The plant is

taxed to capacity to fill orders, and November sales were expected to reach $100,000. The sixth press is being shipped to the Shellmar Products Co., Chicago.

Forestry News

With emphasis placed more every year on the fact that Wisconsin is starting almost too late to save its forests and assure a future pulpwood and timber supply, various agencies are working as never before to accomplish early reforestation. Within a year the movement will have grown to proportions never known before.

There are 400,000 acres set aside as federal forest preserves, and E. W. Tinker, U. S. forester for the Lakes states, is recommending purchase of 177,000 acres in Oconto county, 115,000 acres in Taylor county and 200,000 acres in Ashland and Sawyer counties. This will bring the total practically to 950,000 acres.

Haskell Noyes, Milwaukee, new chairman of the Wisconsin Conservation commission, is recommending that the forests maintained by the state aggregating 200,000 acres be developed eventually to 4,000,000 acres as a means of preservation of the paper and lumber industries. R. B. Goodman, another member of the commission, wants the state to take over 368,000 held by the commissioner of public lands through the school trust funds, and plant this area to trees.

Another step that will speed reforestation is an appropriation of $1,500,000 under consideration at the present time by the legislature in special session permitting the employment of 25,000 jobless single young men this winter and spring in land clearing and tree planting. The work would be done on the large cutover areas owned by the State.

Governor Proposes Surtaxes

Considerable surprise and dissatisfaction has been created in paper mill and other industrial circles by Governor La-Follette's proposal to a special session of the Wisconsin legislature for surtaxes on incomes totaling $17,000,000 supposedly for unemployment relief. Under the proposed plan, surtaxes would be levied on incomes from $2,000 up by a percentage scale. Further attempts are also being made to pass laws requiring compulsory unemployment insurance.

Taxing industries almost to a point of confiscation came as a surprise because paper manufacturers made an agreement with the Governor by which hours and days of work would be manipulated so as to divide available employment among a larger number of men. It was understood at that time that industries could avoid burdensome relief taxes if they would absorb idle men.

Shortly after Jan. 1 the new $150,000 bleach plant of the Interlake Pulp & Paper Co., Consolidated subsidiary at Appleton, will be ready for operation, according to plans of C. K. Boyer, mill manager. Seven large bleach tanks lined with white tile are being built. Equipment also will include special pulp washing machinery, de-watering presses, oil filters for air, and automatic temperature control. The company is using 75 of its own men on a five-day week schedule to do most of the work.

Canada's newsprint industry, the west's paper and pulp production and the kraft industries of the South will eventually eliminate these lines from mills in Wisconsin, J. M. Conway, president of the Hoberg Paper & Fibre Co., Green Bay, Wis., said in a recent address. Green Bay plants have operated at 75 to 85 per cent of capacity during the depression, he pointed out. They employ 1,800 to 2,000 persons, with an estimated pay-roll of $2,250,000. Sales of the respective mills total $12,000,000, of which 92 per cent is sold outside Wisconsin.

At the November meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry at Appleton, more than 100 were present representing every mill in Wisconsin and a number from other states. Speakers were: L. M. Young, Port Huron, Mich., subject, "Cleaner Paper with Copper Pipe"; J. W. Grimes, Chicago, subject, "Lubrication in Pulp and Paper Mills."

Construction is well under way on a large new warehouse for the Thilmany Pulp & Paper Co., Kaukauna, to be of concrete, brick and steel. About 40 men are employed by the Permanent Construction Co. The added space will be necessary when the two machines of the Wisconsin tissue division at Appleton, Wis. are moved to an addition built onto the mill for this purpose, as well as the addition of another paper machine to absorb the company's surplus pulp mill output. These changes will all be completed shortly after the first of the year.

Louis A. Crittenton, Chicago, spoke at safety meetings last month at Wisconsin Rapids, Stevens Point and Rhinelander, placing emphasis on the personal side of safety promotion, and the possibilities it has if there is constant stimulation of interest. These were sponsored largely by paper mills in those cities.

Assurance of employment until May 1, 1932 at least has been given workmen by the Hoberg Paper & Fibre Co. and the Northern Paper Mills, Green Bay, Wis., under a "12 point" program adopted in the community to restore business confidence. The city has been hit by two bank failures. Both mills have been working on warehouse stock frequently to keep men at work.

Experiments by state laboratories have proved that fish die from depletion of oxygen in water, caused by the presence of sulphite liquor. Fish were kept in observation tanks for a long period at the University of Wisconsin and watched under various conditions. They were seriously affected by the toxic poisoning. Fiber waste has no bad effects. These conclusions prove the need of a solution for stream pollution, but none has been reached, although paper mills are cooperating with state agencies in every way to find a remedy.

Incorporation of the Badger Wood Plug Co., Appleton, Wis., has been announced. Arthur L. Herwig is at the head of the concern, which is preparing a plant to make paper roll plugs. Dr. D. S. Runnels and Mrs. Lillian Runnels are the other incorporators. The capital will be $10,000.

An accident at the Thilmany Pulp & Paper Co., Kaukauna, Wis. proved fatal to Raymond Vils, an unmarried employee 22 years old. The cable of a hoist broke, causing a half-ton roll of paper to fall on him.

Lewis T. Robinson

Lewis Taylor Robinson, engineer in charge of the general engineering laboratory of the General Electric Co., Schenectady, N. Y., passed away suddenly November 3, at the age of 63 years.

Dr. Robinson was a veteran electrical technician, one of the widest known electrical engineers in the profession, and for 12 years the head of one of the principal laboratories of General Electric Co.

Hungarian newspapers are limited by government decree to a certain number of pages. The limit has been narrowed recently and as a consequence newsprint paper consumption has decreased heavily in Hungary. The entire paper market is under the influence of the law suspending the free buying of foreign exchanges. The Hungarian National Bank will allot means of payment only for the most important imports, chiefly raw materials and will give no permission for paper imports, except for rotogravure paper, holding the view that the home industry is able to meet the market demand for all other kinds of paper. One consequence is that German mills have almost stopped exports to Hungary.

The Month at Washington

CONGRESS in Session—With the falling of the gavel under the Capitol dome the Senate and House have again convened and Congress is in session. However, due to reorganization and the difficulties of getting under way before the holidays, little of a constructive nature is expected. Of course, a great many bills will be instantly introduced but these will not be acted upon for months.

Predictions are that if all the things now in the air should result in legislation the session would last throughout next year. Work insurance will be one of the headliners and the unemployment problem will, of course, be heavily featured. Taxation will occupy the headlines throughout the session. Foreign debts, farm relief, banking, tariff revision, and what have you are among the issues.

The political situation is unique in Congressional history. In the past, one or the other branches of Congress has been close in its political affiliations. The 26th Congress, back in the 30's presented a somewhat similar situation when the margin of control was slight. But the margin of difference was not so narrow as at present. Seldom, not even in a so-called War Congress, have as many problems confronted our congressional salons as confronts them to-day. World-wide economic depression from which no nation has escaped, and its resulting unemployment has brought in its train ills of the body policit, remedies for which will be sought and solvents for which will not be lacking. The pocketbook never of the people of the country will be severely strained.

The deficit in the Treasury will necessitate more and new sources of revenues. At the same time economy must be practiced. The gustodic freedom with which Congress at the last session lavishly washed the country's ills through unheard of appropriations will be lacking this time, because appropriations must be cut down. The silver question, long dormant since the days of William Jennings Bryan, will come to the front and there will be a demand for the remonitization of silver and for a bimetallic basis as there was in the days of the well-known Commoner.

We will hear much about frozen assets and the banking problem. Unemployment relief measures will loom like a gigantic specter. Even a proposed dole will have its champions. The American Legion's disgruntled hordes will clamor for the payment of the balance of the veteran's insurance. Measures for the stabilization of industry will receive serious consideration. Foreign debts and reparations will occupy the stage. The German moratorium will be the first thing to be considered.

Effect of British Tariff on American Trade—The proposed emergency levy of 100 per cent under British tariff plans includes imports from America valued at 360 millions. Manufactured goods would be assessed, although the entire group of commodities is not necessarily covered. The new tariff will be effective for a six-months period and goods selected for immediate duties will be those which are being imported in abnormal quantities. The ad valorem is on any and all goods in Class III of the import and export list, comprising manufactured and mainly manufactured articles.

Retaliatory action on the British tariff is not contemplated according to Federal Government reports from various sources because there is no "dumping" of goods anticipated, and the final effect will not be heavy on American trade. The exporters of other countries stand to lose much more than American exporters it is pointed out and only 1.6 per cent of the total exports of the United States to Great Britain will be effected. The purpose of the new tariff is to correct the situation arising from the heavy export of gold caused by heavy imports.

Interstate Commerce Rulings—Rates on pulpwood, in carloads, from Canadian origins to destinations in New York and Pennsylvania, were found not unreasonable or unduly prejudicial in a recent decision of the Interstate Commerce Commission, and the complaints were dismissed. (Castanea Paper Co., No. 19852).

Proposed rates on cordwood and pulpwood, in carloads, between points in Alabama on the Atlantic Coast Line Railroad were found not justified in another decision (I & S Docket No. 3575), but without prejudice to the filing of new schedules in accordance with the views laid down in the decision.

Wholesale Prices—The index number of wholesale prices as computed by the Bureau of Labor Statistics shows a decrease for November, covering 550 commodities, of a little more than one per cent, over October, and when compared with 1930 a decrease of 17 per cent. With 1926 as the basis of 100, we find the following changes for paper and pulp:

Nov., 1930	Oct., 1931	Nov., 1931
88.5	80.3	80.4

Employment and Pay-rolls—The Department of Labor reports changes in employment and pay-roll totals for November as compared with October, based on returns by 48,483 establishments in 15 major industrial groups, showing a decrease of 3.3 per cent. With 1926 as the basis of 100, we find the following changes:

	Employment			Pay-roll totals		
	1930	1931		1930	1931	
	Nov.	Oct.	Nov.	Nov.	Oct.	Nov.
Paper and printing	96.0	88.4	89.0	97.7	83.9	84.9
Paper and pulp	87.0	79.5	79.6	82.9	64.2	65.4
Paper boxes	91.5	83.1	84.7	95.2	77.7	82.8
Printing, book and job	95.6	86.0	85.3	96.3	80.8	79.8
Printing, newspapers and periodicals	108.2	103.0	105.1	110.5	103.2	105.0

Venezuela Imposes Import Duty on Paper—A Venezuelan decree of Nov. 20 which is immediately effective, removes from the free list newsprint paper and paper used in printing scientific and popular instruction books, and imposes duty on white paper so employed, glazed, unglazed, or mat finish, at the rate of 0.10 bolivar per gross kilo, plus an additional four-fifths of the duty. Duty is also imposed on white or colored paper, not specified, presumably of the same class, at the rate of 0.75 bolivar per gross kilo. To these basic rates should be added the general surtax of 56.55 per cent of duty.

Permanent Record Papers from Purified Wood Fiber—By studies of the fiber beating operation, which is a critical factor in the production of permanent record papers, the Bureau of Standards developed a beating procedure which permitted ready reproduction of the high-strength, stability, opacity, and other properties desirable in record papers made from highly-purified wood fibers. In fact paper produced has exceeded the Federal Government's strength requirements for bond and currency papers. Alum, an acid material, and rosin, which are added to the fibers before they are formed into paper, were found to decrease the stability of the papers unless the amounts used were very carefully controlled. Starch had no adverse effect on stability. When starch or animal glue were used for surface sizing, the stability of the papers was improved somewhat.

Paper Bottle Cap Industry—Trade practice rules of the paper bottle cap industry as adopted at a trade practice conference held in Chicago last May, have been accepted by the industry, following several changes suggested by the Federal Trade Commission. Group I cover violations of law, while Group II are accepted as expressions of the trade.

Foster Wheeler Corp., New York, has recently opened an office in Washington, D. C., located at 726 Jackson place, N. W. J. S. Malseed, has been moved from New York to take charge of the new office.

NEW YORK CITY

International's Earnings Decline

A net income of $1,871,294 is reported for the first nine months of this year by the International Paper and Power Company, comparing with $2,245,985 in the same period of 1930. For the third quarter of 1931, net income was $264,297, against $974,874 last year. The balance after preferred dividends paid in 1931 amounted to $238,728 for the nine months, with unpaid cumulative preferred dividends accumulated to September 30 amounting to $3,267,899. This compares with a deficit of $3,825,609 for the first nine months of 1930 after full preferred dividends for the period and Class A common dividends of $1,197,347. Surplus on September 30 last was $13,214,941, unchanged from the figure on June 30, and comparing with $12,976,213 on January 1 last and with $11,243,723 on September 30, 1930.

For the September quarter gross income was $10,720,409, against $9,724,119 in the same period of 1930, while for the nine months total income was $31,203,867, against $30,471,610 in the same time of 1930. This showing was made possible by reductions in costs from improved efficiency and economies, notwithstanding heavy declines in volume and prices, the report says.

President A. R. Graustein in his letter to stockholders says:

"Earnings for the third quarter reflect the usual seasonal declines in our business, accentuated this year by the unsatisfactory general business conditions prevailing during recent months. The outlook for four-quarter earnings is good. Marked seasonal improvements should appear. International Paper Company and its subsidiaries reduced salaries and wages approximately ten per cent, effective September 15, and progressive increases in mill efficiency continue as a constant factor for improvement. Indicated net earnings for the month of October alone are almost double the $264,297 earned during the third quarter."

Henry D. Schmidt, president of the Schmidt & Ault Paper Co., of York, Pa., was elected president of the Paperboard Industries Association at the closing session of that organization's three-day convention in the Hotel Commodore in New York on November 17, 18 and 19. Mr. Schmidt succeeds J. H. McLeod, of the Hinde & Dauch Paper Co., Sandusky, Ohio. More than 150 members representing producers of paperboard and paper boxes attended the convention. They endorsed work accomplished by the new uses committee of the Association, and referred to the executive committee a proposal to increase the research fund.

Walter P. Paepcke, president of the Container Corporation of America, Chicago; J. L. Mousley, vice-president and purchasing agent of the Federal Paper Board Co., Inc., Newark, N. J., and Newell J. Lewis, chairman of the Institute, addressed the Fall Meeting of the Waste Paper Institute on November 18 in the Hotel Astor, New York. Close to a hundred members of the Institute and other leaders in the waste paper trade were present, and heard Mr. Paepcke talk on co-operation between board manufacturers and waste paper packers, Mr. Mousley on the improved quality of waste paper packing, and Mr. Lewis on waste paper as a basic and necessary raw material. The Institute voted to proceed with plans for a proposed Trade Practice Conference for the waste paper industry.

The Allied Paper Mills, Inc., have removed their New York sales offices to Suite 447-448 in the New York Central Building, 230 Park avenue. The firm will continue to carry stock as in the past in its warehouse at 471 Eleventh avenue, New York.

Arthur Herman, for sometime past connected with the wood pulp sales department of Parsons & Whittemore, Inc., of New York, has severed his connection with that firm. He intends to deal in sulphite, kraft and groundwood pulps, both foreign and domestic, in his own name, and until desirable facilities are located can be reached at 4508 Fortieth street, Long Island City, N. Y. Mr. Herman hopes he may continue to serve his many friends in the future as he has in the past.

The Bowater Paper Co., Inc., of New York, has filed notice of a decrease in capitalization from $200,000 to $150,000.

The C. R. Whiting Co., Inc., manufacturer of fancy papers for box-covering and other purposes, has taken a ten-year lease on 22,000 square feet of floor space in the south manufacturing building of the Harper Terminals in Hackensack, N. J., and has moved into the new quarters from its former location at 287 New Jersey Railroad avenue, Jersey City. Harper Terminals, Inc., was formed several months ago when Harry C. Harper and his brothers, Roger and Walter, bought the former Campbell Ward paper factory for conversion into a manufacturing center.

A petition in bankruptcy was filed November 19 by Charles Cantasano and Cantasano Brothers, of 185 South street, New York, one of the oldest and best known dealers in papermakers' supplies in the metropolitan district. Liabilities were placed at $35,035 and assets at $11,404.

John H. Engelke, widely known in the paper mill supplies trade, is now associated with Fred G. Marquardt, manager of the Mill Supply Department of the Walker Goulard Plehn Co., Inc., successor to the old Maurice O'Mears Co., of 450 Pearl street, New York.

Paperboard Industries Annual Meeting

The annual meeting of the Paperboard Industries Association was held at the Commodore Hotel, New York City, November 19. Group meetings were held on the 18th and 19th.

Officers of the association for the coming year were elected at these meetings as follows: President and chairman of Executive Committee, Henry D. Schmidt, Schmidt & Ault Paper Co., York, Pa.; vice-president Paperboard Group, F. C. Ash, Oswego Falls Corp., Fulton, N. Y.; vice-president Container Group, M. M. Madson, C. F. Downey Box Co., No. Kansas City, Mo.; vice-president Folding Box Group, H. C. Stevenson, Rochester Folding Box Co., Rochester, N. Y. In addition to the officers, who are members of the Executive Committee, each group elected representatives to serve on the committee as follows: Paperboard, Hugh Strange, John Strange Paper Co., Menasha; Container, R. H. Dollison, Fairmont Box Co., Fairmont, W. Va. and J. H. Macleod, Hinde & Dauch Paper Co., Sandusky, O.; Folding Box, John L. Barchard, Hummel & Downing Co., Milwaukee, Wis.; E. V. Donaldson, Robert Gair Co., New York.

One of the interesting features of the meeting was a splendid address by Julius H. Barnes, chairman of the Board, U. S. Chamber of Commerce. Mr. Barnes' subject was "Organized Business Leadership." He reviewed the world-wide situation, explaining what had occurred in Germany and England and also what has occurred in the United States. He emphasized the necessity for individual manufacturers in an industry contacting with each other at regular intervals for safeguarding their own interests and the interest of their industry.

Mr. Barnes pointed out by specific illustrations outstanding instances where manufacturers have lost sight of the important item of cost represented by machinery obsolescence. Emphasis was laid on the fact that the march of invention drives out the old, sometimes through a simple invention, but more often due to the constant pressure for greater efficiency in plant operation. In the matter of purchasing power, he expressed the view that if those now employed could be assured of reasonably steady employment, they would spend in an orderly manner, thus appreciably increasing consumption. It was his view that fear of possible unemployment by those now employed is causing them to withhold purchases which would go far toward bringing about stability.

Canadian News

Newsprint Super-Merger Contemplated

The virtual accomplishment of the Canada Power and Paper Corp.'s financial structure seems to have fixed the short circuit on the super-merger of newsprint mills, which was so much talked of about a year ago. Climaxing negotiations that had extended for over a month, leading executives of newsprint producers in Canada in a conference in Montreal last month reached an important point in a consolidation plan, which would join together the leading mills of the Dominion. Because similar efforts in the past have quite completely failed of their purpose, the present plan can as yet be considered only as a possibility. An added and important factor in the present proposal, however, is the fact that the impetus is being furnished by the banking interests associated with the industry, and from that direction there is evident a very definite desire to place the industry on a sound basis. The successful creation of Consolidated Paper Corp., as a result of the reorganization of Canada Power and Paper Corp., has apparently resulted in the establishment of a new basis on which negotiations could be conducted.

Prominent in the negotiations were Alexander Smith, president of Abitibi; A. R. Graustein, head of Canadian International Paper, which would also bring into the combine the New Brunswick (and possibly also the Newfoundland) interests of International Paper; Ernest Rossiter, president of St. Lawrence Corp., and Col. J. H. Price, president of Price Bros. Great significance is attached to the fact that the conference was under the chairmanship of E. W. Beatty, chairman and president of the Canadian Pacific Railway, and one of the outstanding figures in the economic life of the Dominion. It is understood that the Backus group of mills in Canada (located at Fort Frances, Kenora and Fort William) are also taking part in the negotiations.

It is believed that the current effort to achieve a consolidation gives more promise of success than any previous attempt. Should the present move be successful, it is believed that, having in mind the over-expansion in productive capacity in recent years, the industry will aim at a capital set-up which would allow economic operations with newsprint prices at comparatively low levels. The participants at the conference are understood to aim, not at higher newsprint prices, but at achievement of production along more economic lines. The total capital of the proposed merger would be upwards of $600,000, with the possibility of some of the smaller producers ultimately joining the merger. The total production of the various organized involved is in excess of 2,000,000 a year, which is approximately four-fifths of the present Canadian production and one-half of the production on the North American continent.

It is felt in industrial circles in Quebec that, while Price Bros., due to old-established connections, might not care to become a part of such a large consolidation, yet should it become an accomplished fact, this firm would undoubtedly lend its co-operation.

A committee appointed at last month's meeting is now engaged in the consideration of the various factors which would enter into the creation of such a combination as is projected, and active negotiations, reaching toward a determination of a fair basis upon which a merger can be effected, are likely to be resumed in the near future. Both on account of the chaotic condition of the industry and because of the influence being brought to bear from banking circles in the present parleys, there is a general feeling that the present effort will meet with success, and out of the present unhappy situation will arise a soundly conceived unit to stabilize the industry.

During the month of October, Canadian newsprint mills, operating at 55.1 per cent of rated capacity, produced 184,252 tons of paper and shipped 191,725 tons. Though the actual production was 5,840 tons greater than in the preceding month, the ratio of operation was 2.6 per cent lower on account of the larger number of working days in October.

Publications Tax Not Successful

Quite a bit of grumbling is to be heard about the way the new customs tax on United States publications coming into Canada is working out. So much so that the undoubted benefits for which it has been responsible, in certain important directions, are apt to be overlooked.

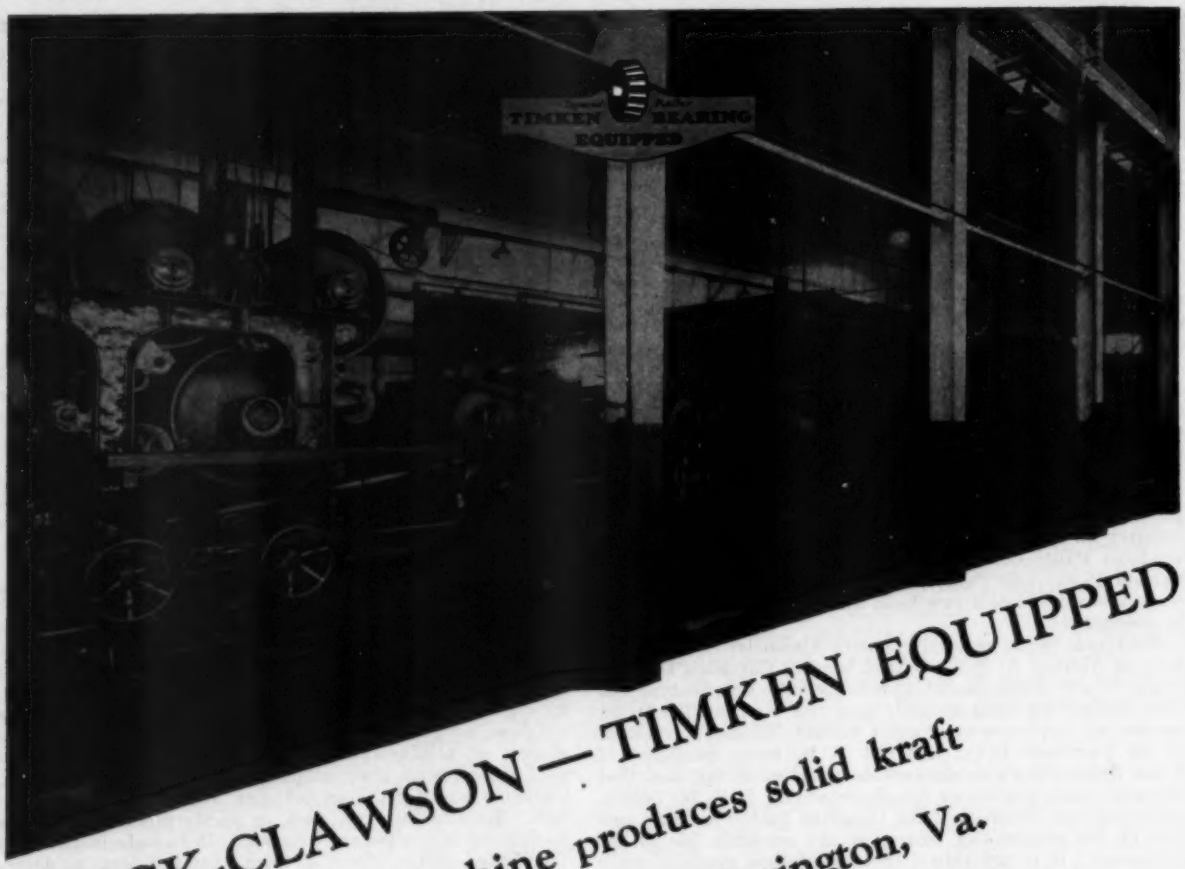
It may be admitted that it has not succeeded very well in cutting off the supply of lurid literature for Canadian reading, which was one of its subsidiary objects. Nor has it done a great deal to substitute Canadian for American magazines, thus creating a bigger market for Canadian publishers and writers, which was another of its subsidiary objects.

The main objective of the duty, however, was the expansion of Canadian industry. The shutting out of American publications was intended to result in the removal of the temptation, offered by their advertisements, to the Canadian consumer, to buy the products of American plants and factories in preference to those turned out by his own domestic industrial establishments. Very largely this objective has not been attained, and, in fact, is not in very noticeable process of attainment. For the number of United States publications, with their alluring advertisements, on sale on Canadian bookstalls, does not show any very striking reduction. But they are produced, or partly produced, so far as mechanical processes are concerned, in Canada instead of in the United States. Such of them, that is to say, as deem it worth their while to be so produced, and whose importation as in former days would not be commercially profitable under the new customs duty.

Something like 40 American publications are now producing Canadian editions in this country. This must mean quite an access of business to Canadian manufacturers of ink, the expenditure for ink on one such publication (not all of them, however, can be presumed to use Canadian ink) amounting to $1,000 a month. About half a dozen of these editions are printed on book paper, the remainder being printed on newsprint, but the covers for these latter are of book or coated paper, so that the new order of things has meant increased consumption of fine papers of Canadian manufacture, and, though probably to a much smaller extent, of Canadian newsprint also.

Gross contribution toward a favorable Canadian trade balance resulting from the activities of the pulp and paper industry as a whole in 1930 amounted to approximately $176,506,583, according to a preliminary survey prepared by the Dominion Bureau of Statistics. This total was made up of the difference between the value of pulpwood exported and pulpwood imported amounting to $12,740,882, the difference between the value of pulp exported and pulp imported amounting to $28,233,117, and the difference in value between paper exports and imports amounting to $125,532,584. The total contribution of the industry toward a favorable balance of trade in 1929 amounted to $195,542,429.

The Department of Overseas Trade recently issued a booklet on the Economic Conditions in Newfoundland in which a section is devoted to the paper industry of that country. Dealing with newsprint production, it states that Newfoundland was the only country in North America to produce more newsprint in 1930 than in 1929. In the past year the two mills in the Dominion produced 287,259 tons. This was a little over 32,000 tons more than in the previous year and



BLACK-CLAWSON — TIMKEN EQUIPPED

This 7-cylinder machine produces solid kraft test liner at the Westvaco plant, Covington, Va. All cylinder molds, couch rolls, felt rolls, primary press rolls and top press rolls are mounted on Timken Bearings to minimize the friction load, save power, reduce wear and cut maintenance. Timkens tame the tough jobs in all Black-Clawson cylinder machines and Fourdriniers.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN Tapered Roller BEARINGS

the best in the history of the industry. The newsprint industry, which is controlled by the Anglo-Newfoundland Development Co. at Grand Falls and by the International Power and Paper Co. of Newfoundland, at Corner Brook, is rapidly overtaking in value the fishing industry, and can now be considered as the second most important business of the Island.

Recently published figures indicate that importations of bleached sulphate pulp into the United States are increasing, and that the bulk of it is coming from Canada. During the first eight months of 1931, Canada supplied 14,190 of the 23,936 tons of bleached sulphite imported into the United States.

It has been held by the Department of National Revenue at Ottawa that watermarking does not render imported paper subject to the provisions of the marking regulations, unless the watermarked paper is imported from a foreign country and has thereon a name or trade-mark which is or purports to be the name or trade-mark of any manufacturer, dealer, or trader in the United Kingdom, or in Canada, or in any other British country, in which case the watermarking would have to be accompanied by a definite indication of the foreign state or country in which the goods were made or produced. A watermark indication of the country of origin would be accepted as a satisfactory compliance with the requirements of the customs tariff act on watermarked paper.

On November 25 the first duties under Great Britain's new anti-dumping measure became effective. These are at the rate of 50 per cent, based on value. As goods from the British Dominions are not to be taxed, the Dominions being conceded full preference, certain lines of Canadian made pulp and paper are likely to be stimulated by this action. There is a possibility that Canadian newsprint may derive some benefit, while lines such as kraft, wrapping papers, boxboards, etc., as well as glassine and greaseproof papers, should enjoy substantial advantages under the new tariff. No definite opinion can be formed, however, without seeing the full text of the schedules, as the condensed form available just now makes the point uncertain.

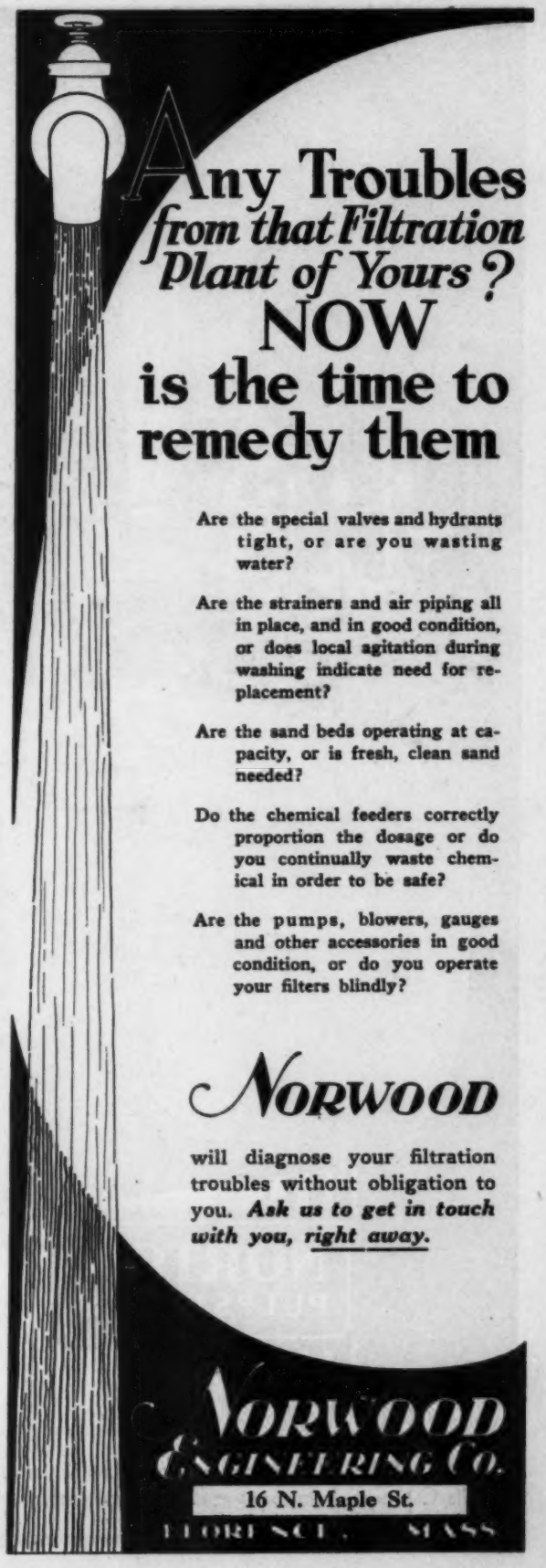
❖ QUEBEC ❖

Large Pulpwood Contract Let by Eddy

The E. B. Eddy Co., of Hull, recently concluded an important contract for 3,000,000 feet of pulpwood with Jules Patry, of Bouchette. Usually the company takes its cut from its own limits, but it was stated that this purchase would help materially in relieving conditions along the Gatineau Valley as it will mean an opportunity for many settlers to cut and deliver much of the wood now under contract. Announcement of the contract greatly relieved anxiety among the people of the Gatineau region who depend for their livelihood upon the lumber industry and were seriously affected by the recent decision of Canadian International Paper to restrict the cutting of logs this winter.

The contract between the Eddy company and Mr. Patry went into effect immediately and many jobless woodsmen have already been taken on. To offset to some extent the reduction in operations in its timber areas, Canadian International Paper will buy several million feet of logs this winter from farmers in the Gatineau Valley, said A. A. Legault, M.L.A. for Maniwaki.

Bondholders of the Belgo-Canadian Paper Co. met in Montreal early last month and recorded their approval of the Canada Power and Paper reorganization plan. Meetings were also held of bondholders of the Anticosti Corp. and of the preferred and common shareholders of that corporation, and at all these gatherings formal approval was given to the plan. These meetings completed the series of assemblies of


Any Troubles
from that Filtration
Plant of Yours?
NOW
is the time to
remedy them
Are the special valves and hydrants tight, or are you wasting water?
Are the strainers and air piping all in place, and in good condition, or does local agitation during washing indicate need for replacement?
Are the sand beds operating at capacity, or is fresh, clean sand needed?
Do the chemical feeders correctly proportion the dosage or do you continually waste chemical in order to be safe?
Are the pumps, blowers, gauges and other accessories in good condition, or do you operate your filters blindly?
NORWOOD
will diagnose your filtration troubles without obligation to you. Ask us to get in touch with you, right away.
NORWOOD
ENGINEERING CO.
16 N. Maple St.
FLORENCE, MASS

Modern newsprint mills employ Norton Pulpstones. Photograph shows a section of the grinding department of the great, new plant of Maine Seaboard Paper Company, Bucksport, Maine.

NORTON COMPANY
WORCESTER, MASS.

Canadian trade supplied by
NORTON COMPANY OF CANADA, LTD.
Hamilton, Ontario

NORTON PRODUCTS—Grinding Machines, Lapping Machines • Grinding Wheels, Abrasives for Polishing, India Oilstones, Pulpstones • Laboratory Ware, Refractories, Porous Plates • Non-slip Tiles and Aggregates

security holders of Canada Power and Paper Corp. and constituent companies. In all, 21 meetings were held on various dates over a period of about three weeks.

Fine Safety Records of Two Mills

The Laurentide (Grand'Mère) and Wayagamack (Three-Rivers) divisions of Canada Power and Power Corp. are making splendid safety records. The former has been running 275 consecutive days and the latter 118, without sustaining any lost-time accident, and both are still going strong. The year 1930 was the banner year for both of these divisions, with accident frequency rates of 9.808 and 18.84, respectively, as compared with 26.37, the average of all mills in the industry reporting to the National Safety Council.

For the period January 1 to September 30, 1931, the Laurentide mill has effected a reduction of 77 per cent, and the Wayagamack one of 51 per cent, as compared with their 1930 accident frequency record. During the present year neither mill has sustained any fatal, total permanent disability, nor partial permanent disability accident.

A notice appearing in the Quebec Official Gazette recently stated that the Mont Louis Seigniory, Ltd., of Montreal, and operating at Mont Louis, Gaspé County, was applying for authorization to construct a dam and hydraulic power plant at the division line between the seigniory of Mont Louis and the Crown lands. Plans showing the site and the nature of the work are now in the hands of the Minister of Lands and Forests. Mont Louis Seigniory is a subsidiary of the Algonquin Paper Co., Ogdensburg, N. Y.

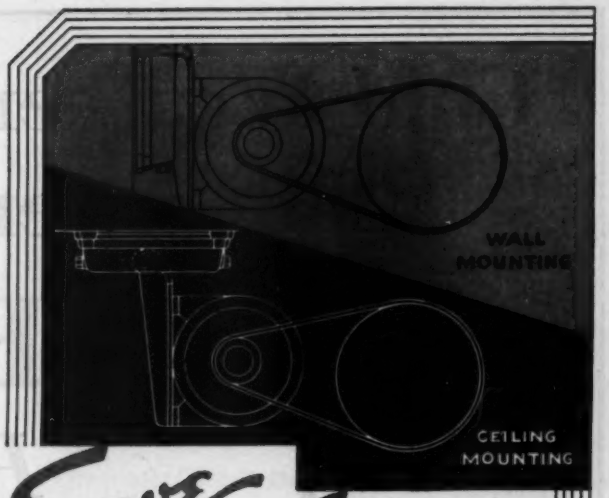
At a recent meeting of the board of directors of Canadian International Paper Co., Brigadier-General J. B. White, D.S.O., was appointed first vice-president. Brigadier-General White is vice-president of New Brunswick International Paper Co., vice-president of Gatineau Power Co., and a director of Canadian Hydro-Electric Corp.

The head office of the reorganized Canada Power and Paper Corp., now Consolidated Paper Corp., was moved last month from the Canada Cement building to the Sun Life building, Montreal, where the various departments of the Corporation will be "consolidated" in larger offices under one roof and under the immediate supervision of president L. J. Belnap. George Henderson, comptroller, formerly located in Three-Rivers, has been transferred to Montreal with his staff, as has Harold S. Warren, purchasing agent, formerly located at Grand'Mère.

ONTARIO

Great Lakes Operating Satisfactorily Under Receivership

Great Lakes Paper Co. had assets of $14,517,520 at March 31, 1931, according to an approximate statement of affairs of the company prepared by a Toronto firm of accountants, while claims payable prior to the 6 per cent first mortgage bonds amounted to only $241,508. After providing for these claims and principal and accrued interest of bonds outstanding amounting to $10,350,000, there remained a surplus of approximately $3,926,012 available for other creditors and shareholders. Claims of creditors, ranking after the bonds, amount to $2,645,425, of which $2,161,765 is due to bankers. During 1930 the income and surplus account of the company shows net earnings available for interest, depreciation and taxes of $1,740,369. Fixed charges amounted to $1,030,103, which left a surplus for the year of $710,266. In the three months ended March 31, 1931, net earnings amounted to $285,325, or an operating surplus for the period of $31,861. Average sales per month and average price received per ton are stated to have been lower than was the case in 1930. For the first five months ended August 31, 1931, both average sales per month and average price received per ton were



Save Floor Space BY UTILIZING WALL AND CEILING SPACE WITH VIM EFFICIENCY DRIVE

Equipped with LEATHER TRADE VIM MARK BELT

Mount it on the wall; mount it on the ceiling. A special mechanical feature automatically maintains uniform belt tension . . . compensates for stretch . . . reduces take-up—even though the entire device is mounted upside down.

A VIM Efficiency Drive will soon pay for itself. It not only saves costly floor space, but it supplies the required horsepower to the driven unit with virtually no transmission losses. Write for details.

Use this Handy Coupon!

E. F. HOUGHTON & CO., P. I.
P. O. BOX No. 6913, No. PHILADELPHIA, PA.
Gentlemen:

☐ Please send me a free copy of "Vim Short-Center Drives."
☐ Have the Houghton Distributor discuss with me your compilation of charts, tables, and engineering data on 5,000 drives. I understand that this incurs no obligation on my part.

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POSITION.....
COMPANY.....
ADDRESS.....
CITY.....STATE.....

Cold Weather Calls Attention To HEATING *Problems*

Lack of ample heat where and when needed, presents a common problem. But an ample supply of heat can also prove a problem when it is being secured at excessive cost. The latter type of heating problem is now being given the attention it deserves. During cold weather, it becomes a substantial item in burdensome operating expense. Under present conditions it must not be overlooked.

Whether your need is for an additional supply of heat or for a reduction in the cost of maintaining your present supply, the long successful experience of ROSS engineers can be of immediate aid to you. In scores of mills similar to your own, we have quickly corrected heating troubles and permanently eliminated costly sources of waste and inefficiency. Check up on your conditions now. Get the recommendation of a Ross heating specialist.

Get in touch with our office nearest you.

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ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

lower than corresponding figures for the three months ended March 31, 1931.

Approval of the sale of all the outstanding capital stock of the Memphis Commercial Appeal, Inc., to federal receivers for the Minnesota and Ontario Paper Co., of Minneapolis, was given last month by Chancellor James E. Newman, of Nashville, Tenn.

J. G. McCaw, crown timber agent in the Sudbury district, placed the pulpwood shipments of this winter to not exceed 8,000 cords, the major part of which is cut and ready for transport, while the cut of one company alone in years previous to last was 50,000 cords and the total traffic was estimated at 400,000 cords. Mr. McCaw stated that small shipments are being made from Northern Ontario points to United States mills.

Dr. A. F. Gallaugher, of Montreal, and formerly of Vancouver, has been appointed in charge of the mill laboratory that Interlake Tissue Mills Co. recently organized at its plant at Merritton. Dr. Gallaugher recently completed an advanced course of research work at the Pulp and Paper Research Institute.

Abitibi Jottings

Rumors that construction of the big plant of Ontario Public Service Corp. at Abitibi Canyon, which is a wholly owned subsidiary of Abitibi Power and Paper Co., is costing more than estimates and is behind schedule, appear to be without foundation. Cost of construction to date has been well within earlier estimates and construction schedules are right up to the minute, company officials claim. The Abitibi Canyon development is different from any other yet undertaken in Canada and costs cannot be forecast to the dollar. There is no reason for doubt, however, that on completion of the enterprise expenditures will be well within aggregate estimates.

The Abitibi Company has completed plans and awarded contract to Lang and Ross, of Sault Ste. Marie, for the construction of a new power transmission line in the Abitibi Canyon district, reported to cost close to $1,000,000, with power substation facilities. The line will be about 114 miles long.

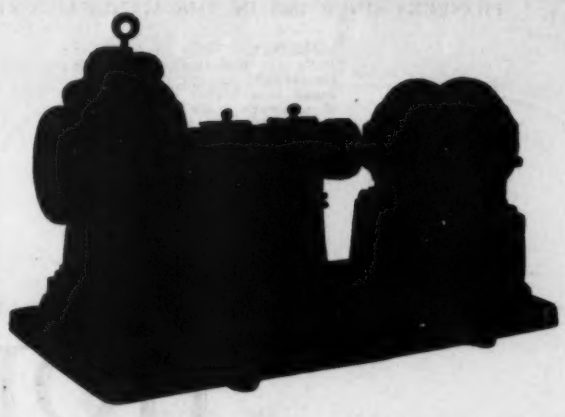
At an early date the Sault Ste. Marie Division of Abitibi will go on six-hour shifts, providing for four six-hour shifts instead of three eight-hour shifts as at present, by which means probably 100 more men will be added to the pay-roll. To make the change the company finds it necessary to bring in 35 skilled mechanics from other mills. The work done by these men could not be performed by any men available at the Soo. The labor unions affected at the mill have all approved the six-hour shift.

◆ BRITISH COLUMBIA ◆

Reviving Prince George Project

According to an official statement received from Prince George, the Fraser River Pulp and Paper Co., of which Frank P. Jones, former president of the Canada Cement Co., is member, has sent a man to look over its timber and other assets at Prince George. The official arrived in British Columbia early in November, and Honorable E. F. Burden met him and accompanied him on his investigation. Exactly what the outcome of this visit will be is a matter eagerly watched by the people in the Prince George district, but it is understood that it may result in a revival of the Prince George pulp and paper mill which has been a matter of interest in the Prince George district for years.

British Columbia Pulp and Paper Co. has omitted payment of dividends on the company's 7 per cent preferred stock, of which there is $556,200 outstanding. The dividend,



"One mill uses over 100 Fredericks"

THESE STOCK PUMPS *last!*

We have an ideal in mind in designing Frederick stock pumps—to build a pump of rugged oversize parts for uninterrupted service and maximum freedom from breakdowns; a pump that yet takes less power for pumping all consistencies of stock.

In other words, we build the sort of pump you would build for pumping stock.

It isn't easy to build such a pump, and yet we have a rather spectacular list of Frederick pulp and paper mill users to prove that we have done it.

And if you inquire of these users, they will tell you, as they have told us, that they choose Fredericks because they give uninterrupted service and continue to give it. In short, ***these pumps last.***

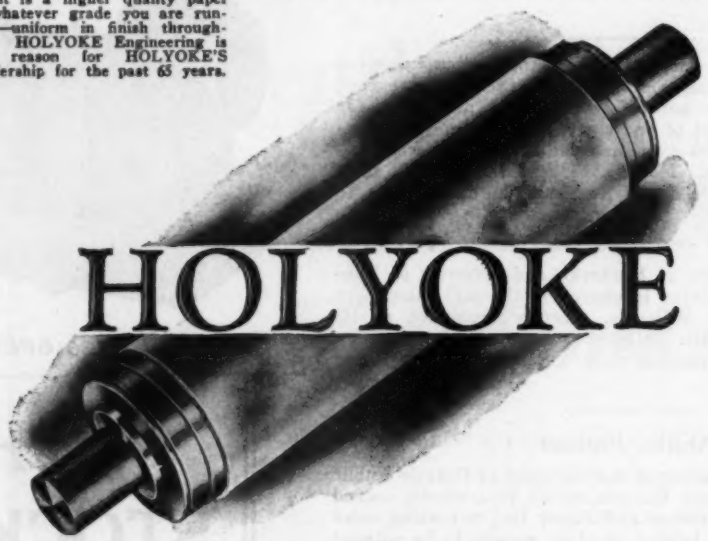
Write for this list of Frederick users and a copy of the latest Frederick Paper Mill Bulletin

FREDERICK PUMPS

The Frederick Iron & Steel Co., Frederick, Maryland

PIONEERS SINCE 1863 IN THE MANUFACTURE OF PAPER MILL AND WOOD PULP MACHINERY

HOLYOKE Cotton and Paper Rolls are precision rolls. Not theoretically so—but actually. The result is a higher quality paper of whatever grade you are running—uniform in finish throughout. HOLYOKE Engineering is the reason for HOLYOKE'S Leadership for the past 65 years.



HOLYOKE

LONGER LIFE

LONG LIFE in paper and cotton rolls designed and built by Holyoke Engineers is due to the hundred and one important details which they refuse to overlook. The Outstanding Holyoke-Roll qualities of Resiliency, Uniformity, Long Life, and Heat Resistance are all insured by this insistence upon attention to the finer points of engineering construction.

Write HOLYOKE MACHINE CO., HOLYOKE, MASS., Manufacturers of Super Calenders, Platers, Cotton and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.

The HOLYOKE MACHINE COMPANY

FOUNDED 1863

which is cumulative, was payable on November 1. Though no figures have been released on earnings, it may be assumed that they have fallen below last year's level, when the preferred dividend was covered by a relatively small margin.

The British Columbia pulp and paper industry is prominently represented in a "good will cargo" which is being forwarded to Australia. While the Canadian trade ship "Canadian Constructor" was the official good will ship and sailed from Montreal with a big cargo of products, British Columbia will also be in the picture with a second big cargo going forward from the Western Provinces to the Antipodes. The two ships will reach Australia practically at the same time and consequently both vessels will secure publicity. The cargo which will thus make an auspicious appearance in the Australian market includes 600 tons of newsprint, 300 tons of wood pulp, 2,000,000 fruit wrappers, 5,500 cases of canned salmon and 75,000 apple boxes. It is also announced that prospective bookings for later sailings already cover 400 tons of wood pulp, fairly extensive newsprint orders, and enormous quantities of fruit wrappers.

Investigating New Markets

British Columbia mills are chiefly affected by the action of the New Zealand Newspaper Proprietors' Association in recommending to its members that at least two-thirds of their newsprint orders be placed with English manufacturers during the next 12 months. Pacific Mills, Canadian subsidiary of Crown-Zellerbach Corp., and Powell River Co., which has built up a large Australasian business through its connections with Carmichael and Co., largest distributors of newsprint in Australia and New Zealand, are the principal Canadian companies to suffer. They have regarded the New Zealand business as steady and well worth while, and regret its loss, even though it may be only temporary.

Meanwhile the coast mills are busy developing markets elsewhere. The Orient is being intensively canvassed, the western states are buying more British Columbia paper than ever before, and British Columbia pulp is actually being sold in Northern Europe in competition with Swedish and German pulp.

❖ NEW BRUNSWICK ❖

A definite announcement was made recently by the head office of Fraser Companies, Ltd., that it would not operate the Victoria mill in Fredericton in 1932 due to heavy stocks on hand and the slow movement of lumber due to depressed conditions generally. This not only will affect the operation of the mill next summer, but also the logging activities in that section of the province, as far as the company is concerned. No arrangements have been made regarding the rebuilding of the plant, destroyed by fire, at Pride's Landing, near Fredericton Junction. In other districts in which the company has plants, it is planning to operate next year in spite of conditions in order to help the unemployment situation.

According to latest reports the mill of the New Brunswick International Paper Co., at Dalhousie, will be able to give employment to all its men and to run its four machines at full capacity for one year if power is available. This is due to the fact that the company received recently enough orders to keep the mill going during that period. It is hoped that the water of the St. John river will maintain its level to generate enough electricity at Grand Falls to keep the mill going.

Premier C. D. Richards announced in St. John last month that, as a result of negotiations carried on with the Fraser Companies, the pulp mill of that organization at Chatham would continue operations through the winter. It had been expected that the mill, which employs about 150 men, would be closed towards the middle of December.

The Span of Life

—of ALL felts is necessarily short, but—Orr Felts have a span of life a few days longer than others—and this by actual test.

Figure the saving due to a few days' longer service out of each felt—apply it over a year's run and you will easily see what such a saving can mean to any mill.

Orr felts not only last longer, but remove water faster, regardless of speed travel, and reduce broke by delivering a stronger sheet to the dryers.

In short, Orr Felts will help you to secure greater tonnage and better quality at less cost and greater profits.

Orr Felts are made in all textures and for every requirement

The Orr Felt & Blanket Co.
Piqua, Ohio

ORR FELTS

POSITION WANTED—Salesman, experienced in developing and marketing specialty papers, would represent small paper or converting mill in New York territory. Commission basis. Address Box 202, The Paper Industry.

It Pays to Advertise Opportunities in This Opportunity Section

VEST POCKET POWER PLANTS

Small space occupied, any capacity, low over-all operating costs, high and extreme efficiencies, reliability, low initial investment. Complete power plants to meet any operating conditions of Pulp and Paper mills or other Industrial service, Engineering and Construction.

Satisfactory Services Always Guaranteed.

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Power Specialists
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CHEMIPULP PROCESS

TURNS DIGESTER WASTES INTO PROFITS
CHEMIPULP PROCESS, INC., WATERTOWN, N. Y.

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CRANES Electric RELIABLE & Hand **HOISTS**

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Managers, Superintendents, Technologists

Increase Your Profits!

New bleaching process for Sulphite, Groundwood, Sulphate, Jute and Straw.

Also processes for—

De-Inking
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Box 184 - - - The Paper Industry

Lessons in Paper Making

By Harry Williamson

One of the greatest funds of information on paper making ever published for the mill man.

Part I contains the first twelve lessons and two separate articles—A Problem in Head Box Control and The Degree of Hydration.

Part II contains fourteen lessons and one separate article—Safety Practice in Machine Room. Price 50¢ each.

Practical Helps for the Mill Man

A 48-page pamphlet made up of practical helps, many of which have meant considerable savings in paper and pulp mills. Of tremendous value to the practical man. Price 50c.

THE PAPER INDUSTRY
333 N. Michigan Ave. CHICAGO, ILL.

Newsprint Reductions

Announcement was made December 2 that effective January 1 Canadian manufacturers of newsprint will reduce the price from $57 to $53 per ton. This makes the drop in Canadian newsprint during the past 11 years of $80 per ton.

On December 1, the Great Northern Paper Co., large New England manufacturer of newsprint, reduced its price $2 per ton. The later announcement of reduction in Canadian newsprint was met by this company with a further reduction of $2 per ton, meeting the Canadian competition.

Although other newsprint mills have been reluctant to make any statements, it is believed that further reductions will be announced very shortly.

PACIFIC COAST

WASHINGTON

Waxed Paper Co. Ready for Business

J. C. Jackson, superintendent of the new plant of the Pacific Waxed Paper Co. at Seattle, reports that they are off to a flying start in manufacture of their special products, which includes waxed wraps, both printed and unprinted, for bakers, florists and confectioners, and a line of waxed kraft for butchers and also for lining of cartons.

Allen B. Engle is president of the company and T. W. Mason is secretary-treasurer. The business was recently moved from Tacoma upon the completion of this new modern plant in Seattle. Warehouses and sales branches will be maintained in both San Francisco and Los Angeles and the company plans to distribute several special lines under its own brand names.

Roger E. Chase of Tacoma, representative in the Pacific northwest for the American Air Filter Co.; American Arch Co., Hills-McCanna Co.; Air Preheater Corporation, Dust Recovery, Inc.; Chas. Engelhard, Inc., and Zaremba Co., whose chemical career covers the entire period since his graduation in 1909 from the University of Vermont, is a new member of Tappi.

The Rainier Pulp & Paper Co., Shelton, has received a permit to list 15,000 shares of Class A common stock on the San Francisco exchange. Conversion of the company's first mortgage convertible bonds is provided for in the listing.

Lyman Smith, formerly manager of the Crown Willamette Paper Company's mill at Camas, is now superintendent of the Cherry River Paper company, Richwood, W. Va.

OREGON

Special water rates east from the Pacific coast on wood pulp, which have been effective for sometime through the Luckenbach Gulf Steamship company, will remain effective until June 30, 1932, according to recent action of the company. This rate is 25 cents per 100-lbs. not exceeding 60 cubic feet per 2000 lbs. in lots not less than 350 tons, by way of gulf ports. Northwest shippers of wood pulp who have used the water route have in most cases signified their intention of continuing the practice as an economy measure.

W. P. Hawley

W. P. Hawley, for many years a leader in the paper industry in the State of Oregon and the West, and largely responsible for many improvements in that section, passed away at his home in Portland, December 1, at the age of 75 years.

Mr. Hawley was born in Malone, N. Y. He came to Oregon in 1892 as superintendent of the Crown-Willamette Co., and became the second largest owner in the plant. In 1907 he organized the Hawley Pulp and Paper Co., and at the time of his retirement from business in 1929 was president of the

RYERSON

IMMEDIATE STEEL FOR MAINTENANCE AND REPAIR

When something breaks . . . and steel is needed in a hurry . . . you can depend upon Ryerson for quick action. Complete stocks of all steel products, including:

Bars	Wire	Babbitt Metal
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STEEL

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Broad Line of Applications

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Steam Engines and Turbines
Gas and Gasoline Engines
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Our vast experience in developing Governors for varied service is available to concerns who desire help in their engineering problems.

THE PICKERING GOVERNOR CO.
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SKINNER & SHERMAN, INC.

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Announce the establishment of an office in the Grand Central Terminal Building, New York, where they are prepared to furnish counsel to the pulp and paper industry including plant design and erection, engineering reports, consultation, valuation, development of new processes and products, and improved manufacturing methods.

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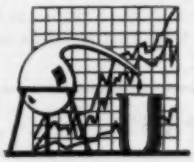
The Esselen Research and Development Laboratories
CHEMISTS AND CHEMICAL ENGINEERS

Specializing in Problems of the Cellulose Industries



PULP PAPER
RAYON VISCOSE
CELLULOSE ACETATE
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ANNOUNCE the establishment of an additional office at 246 STUART STREET, BOSTON, MASS. where they are prepared to furnish a COMPLETE engineering service to the pulp and paper industry including plant design and construction supervision, engineering reports, consultation, valuation, development of new processes and products, and improved manufacturing methods.

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Special development work for control of complicated manufacturing processes.

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Pulp and Paper Mills, Power Plants, Chemical Plants

Engineering Design — Management
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30 CHARLES RIVER ROAD — CAMBRIDGE, MASS.

Hawley Company, the St. Helens Pulp and Paper Co., and the affiliated company, the California Bag and Paper Co.

T. J. Waltmon, manager of the Portland office of Simonds, Worden, White Co., Dayton, Ohio, is a recent addition to Tappi. The local office is at 81 First street.

A. Gustin has arrived from Wisconsin to take charge of the Sitka Spruce Pulp & Paper company's plant at Empire as superintendent.

CALIFORNIA

Crown Willamette Shows Gain

Crown Willamette Paper company, in its report for the first six months of the fiscal year ended October 31, showed net profit totaling $1,657,956, equivalent to $8.29 a share on the 200,000 first preferred cumulative shares outstanding. In the similar six month's period ending October 31, 1930, the earnings on the same number of preferred shares outstanding were $1,366,532, or $6.83 a share. Thus a net profit increase of $291,424, or a gain of 21 per cent is shown this year through the comparative reports.

Gross income for the first six months ended October 31, 1931, before depreciation, depletion, bond interest and taxes, amounted to $4,224,244, as compared to the semi-annual report for the first six months of the fiscal year 1930, during which gross income was $3,935,718.

The plant of Fibreboard Products, Inc., Vernon, has designed and is manufacturing a new egg carton which promises a maximum of safety in handling and shipping, inasmuch as the eggs do not rest on the bottom of the carton itself. The product is also being manufactured at the Antioch plant of the company. Both the egg case and the machine for its manufacture were designed and patented by the force at the Vernon factory.

The Patterson-Pacific Parchment Co., which recently announced plans for a new building in San Francisco, has been making some revisions in the plans and architect F. H. Slocombe has the latest set of plans well toward completion. The building is to be located at 68 Rincon avenue, and will be three-stories and basement, costing $30,000. Harry C. Knight, contractor of Oakland, has the building contract.

Bruce Barton Addresses Armco Association

At the two-day convention of the distributors of the American Rolling Mill Co., held in Middletown, Ohio, December 9-10, Bruce Barton well-known editor and advertising executive addressed the guests at the banquet given on the evening of the 10th.

The second day of the conference was given over to a discussion of merchandising, advertising and engineering methods. There was a large attendance of members from different sections of the United States and Canada.

Pickles' Patent
Automatic Steam Regulator
FOR
Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES Buckland, Conn.

DAIRY WHITE

Highly recommended to be used in and around Paper and Pulp mills.

Dries from evaporation in a few minutes and can be applied over damp surfaces.

Acid and alkali proof.

Tested and proven satisfactory according to the Forest Research Laboratory, McGill's Institute, Montreal, Canada.

Read Dr. Johnston's article in "Quarterly", October 30, 1930.

Consult us about our other Bituminous articles to be used around the mill.

SLEIGHT BITUMINOUS PRODUCTS CO.
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KEYSTONE ALBUMEN PAINT CO.
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For blemish-free calender rolls

DID you know many paper mills use Oakite Grinding Compound for grinding steel calender rolls? As in big automotive and machine tool plants, it is a wonderful coolant and lubricant, producing a smooth surface, free from blemishes. Prevents rust when rolls are left wet overnight.

There are other practical uses for Oakite in mills such as washing felts, cleaning Fourdrinier wires, save-alls, screen plates and sieve cloths. Let us send you interesting booklet with formulas and directions. A copy, mailed free and without any obligation, is waiting for any mill superintendent who requests it.

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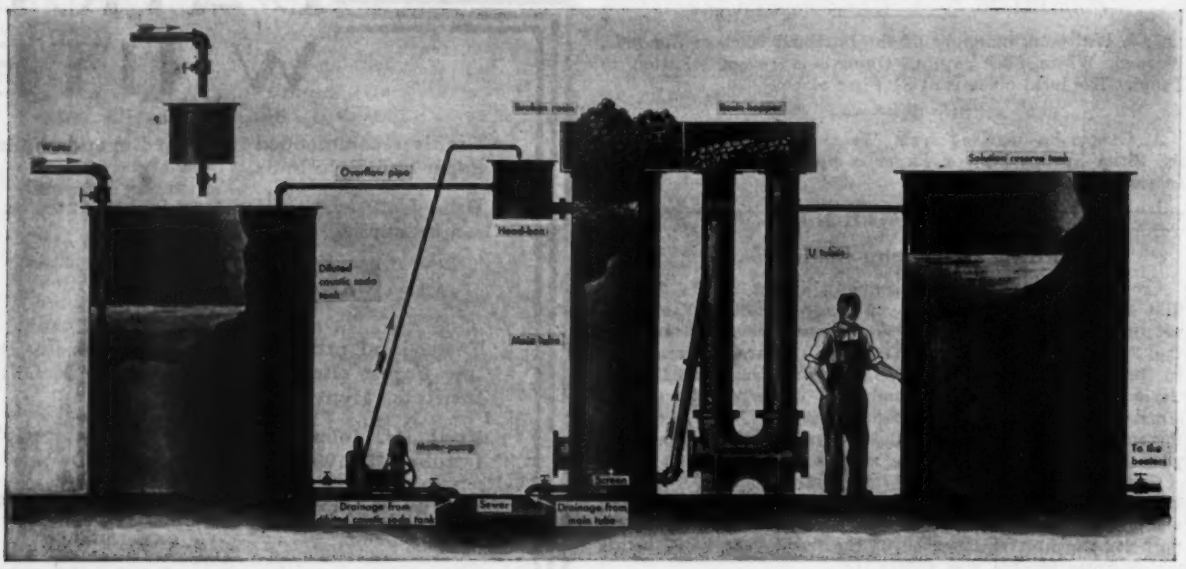
TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods



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Assures Minimum Maintenance and Lasting Durability

THE utter simplicity of operation is demonstrated in above illustration. Concentrated caustic soda is diluted with water in the Diluted Caustic Soda Tank. The motor pump then raises continuously the diluted caustic soda solution to head box. From there it passes through the main tube and U tubes which have been previously filled with broken rosin, becoming richer and richer in rosin until its saturation point is attained. When through last U tube it passes into Size Reserve Tank, and is then ready for use in beaters.

A DELTHIRNA Plant should last life of mill because there are no moving parts, except the small, fractional horsepower pump, and there are no corrosive actions.

SAVE 30% AND MORE IN YOUR SIZING COST WITH THE DELTHIRNA SYSTEM.

YOU CAN PAY FOR THE DELTHIRNA SYSTEM FROM THE SAVINGS EFFECTED.

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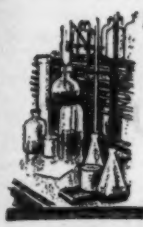
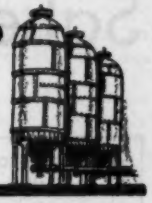


Technical Developments in the Paper Industry



Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

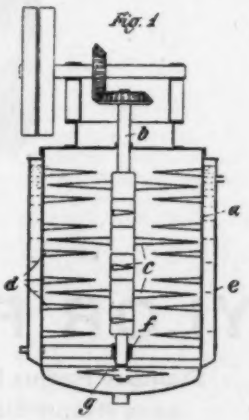
Sizing for Paper

THIS patent is concerned with an improvement in the process for the manufacture of a sizing material from kaolin and other similar materials which are treated with sulphuric acid. The ordinary process for making these sizing materials involves the use of pressure and/or calcination.

The new process does not require calcination or pressure. It is unnecessary to add external heat to the reaction. The intimately mixed reacting materials are carried up to a temperature of 80 deg. C. as quickly as possible, so that the reaction is started and the same proportion of alumina in the raw materials is easily attacked by the sulphuric acid. Precautions are taken to avoid any loss of heat. Under the exothermic conditions of the reaction, the temperature is quite rapidly raised to 115 to 120 deg. C. This is a point which cannot be attained by direct heating of the reacting masses with steam under the ordinary atmospheric pressure. The reaction then continues more or less rapidly until all of the sulphuric acid is neutralized. The final product is obtained in crystalline form. Andre Monestier Somme, France. French Patent No. 708,674.

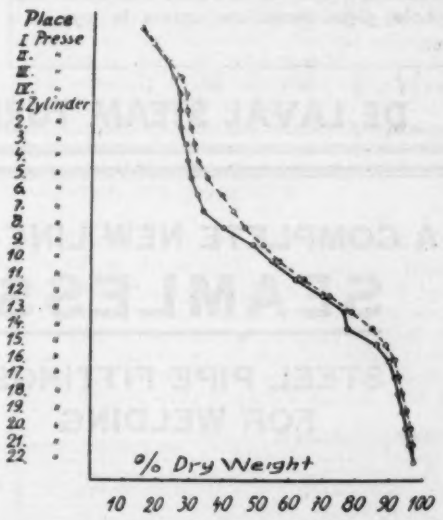
Treating Raw Paper Stock

THE apparatus, that is shown in the accompanying illustration, is intended for use in the treatment of various raw cellulosic products so as to remove their impurities and incrustating materials by an effective and cheap process and render them more suitable for conversion into paper pulp. The principle of the treatment, to which they are subjected, is that the raw materials are suspended in a liquid, water preferably, which is rapidly agitated, with the result that incrustating materials are removed. This is accomplished purely by mechanical means, by the action of shock against parts of the apparatus as well as by the centrifugal action of the rotating agitator. The contents of the apparatus are kept at different temperatures corresponding to the nature of the stock that is being treated. As can be seen from the figure, the apparatus consists of a drum (a) in the interior of which is placed the shaft (b) which rotates rapidly and carries a number of arms (c) which are made in the form of knives. Similar knives (d) are fixed to the wall of the drum, so that the stock that is rotated between these knives is well cut up. In the bottom of the apparatus there is provided a pair of knives (g), which are also mounted on the shaft (b) which serve to agitate the stock that falls down and to bring it again into contact with the cutting devices. The drum is double jacketed so that a cooling liquid may be introduced therein to prevent the temperature from rising above a certain maximum limit. The cooling jacket is shown at (e). Thus the generation of heat during the cutting operation is thus taken care of and the rise in temperature to dangerous heights is prevented. Water which has been heated to the desired temperature is used for the operation and the temperature is maintained by the heat generated during the process. A. G. fuer Halbzellstoff-Industrie, Switzerland. French Patent No. 704,030.



The Overloaded Paper Machine

WHEN the wet part of the machine is sufficient to carry the overload, then the latter is felt in the dry end. The paper web is then dried with higher steam pressure without due consideration to the correct distribution of the three periods of drying, that is the heating of the paper, the evaporation of the water and the finish drying. This produces tensions in the paper with unfavorable results. Samples were taken of the paper web in various parts of the paper machine. The progress of the drying of the paper is shown in the curve. The paper was made from very slow stock, and speed of the paper machine was 92 meters per minute, or 102 meters per minute for paper of 40 grams per square meter weight. The dotted line curve in the figure shows the proper course of the drying while the full line curve shows the drying operation as it was first carried out. The curve diagram enables a close analysis of the course of the drying operation to be made and indicates what part of the drying took place in each part of the paper making machine. The changes, shown by the dotted line curve, were obtained by providing the rubber roller of the third press with a new rubber covering, with the result that the dry content of the paper before it entered the dry end of the machine rose to 25 per cent absolute weight. Furthermore, cylinders (2) to (5) were heated somewhat more strongly so as to accelerate the



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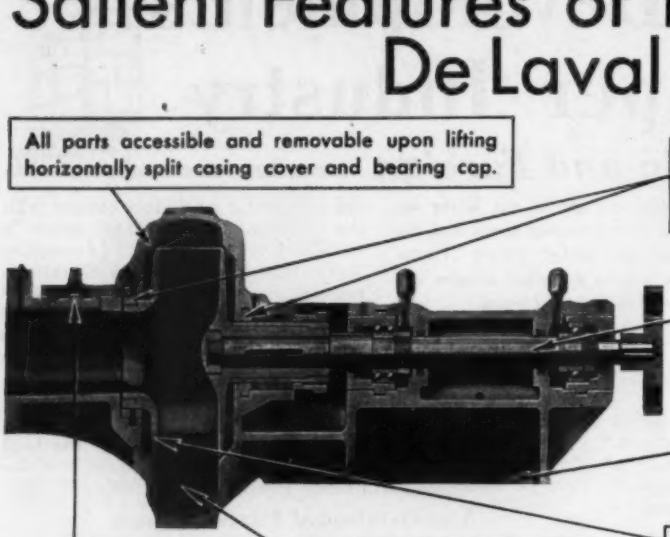

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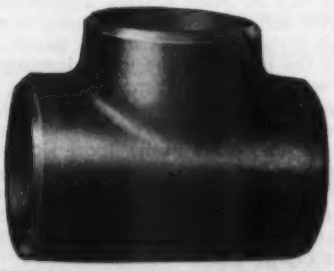

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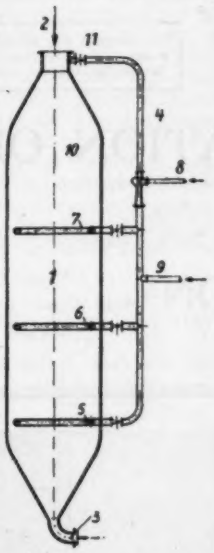
heating of the paper. The heating can be somewhat decreased with respect to cylinders (10), (11) and (12), without there being any fear that the drying of the paper will be retarded. This was necessary, because at the great speed at which the machine is operated, the paper web may be easily dried out at 80 per cent absolute dry weight by the intense heating. This accounts for the rapid rise of the full line curve between cylinders (14) and (16) from 77 to 90 per cent dry content. The equalization of this rise is seen in the dotted line curve. Hence in order to produce this smoother drying effect in the cylinders (16) and (17), the admission of steam to the same was somewhat throttled down. K. T. Jahn, Zellstoff und Papier, 1931, 471-2.

Manufacture of Pulp

THE object of this improvement in the digestion of pulp is to make the individual digestion operations as well as the entire digestion process more regular. This is done in this manner, that the gaseous reagents which are liberated from the digestion liquor during the digestion process, or other gaseous reagents in admixture with the former, or alone, are introduced into the digester at different heights thereof. The reagents that are introduced at each point in the digester are measured out in such a manner, that each of the portions of the digester which is affected by the introduced reagents receives a prescribed strength of liquor. This strength increases from the point at which the stock is discharged to the point at which it is fed into the digester.



In the illustration, the digester is shown at (1). The feed of the stock takes place at (2) and removal of the stock at (3). A gas connection is seen at (4). One or more pressure injectors of the steam type, as shown at (8) is built into the pipe (4). The latter pipe opens out into the digester through three connections shown at (5), (6) and (7). Other gaseous reagents are added through the pipe (9).

The stock enters the digester under pressure and passes down, leaving in digested form at (3). Each particle of wood remains with the quantity of liquor surrounding it. The strong liquor is at the top and the weakest liquor at the bottom. Thus the liquor at any one point in the digester always remains the same, thus a ten per cent liquor is always found at (10), a three per cent liquor at (7), a two per cent liquor at (6) and a one per cent liquor at (5), figured in percentage of sulphur dioxide. The gases are released by heating of the stock and rise in the digester, being drawn off at (11) and being reintroduced in measured amounts at (5), (6) and (7). Metallgesellschaft A. G., Frankfurt-am-Main, Germany. German Patent No. 525,531.

Limestone and Caustic Lime for Papermaking

THERE are consumed per ton of sulphite pulp 375 pounds of limestone in the acid tower or 200 pounds of caustic lime in the vat system. An additional 130 pounds are required for the bleaching of one ton of sulphite pulp. One ton of sulphate pulp requires 500 pounds of caustic lime and 600 pounds in the case of bleached stock. In the manufacture of rag stock, the consumption of caustic lime is 120 to 250 pounds for the digestion of one ton of the rags.

Limestone with a high lime content is mostly preferred for the manufacture of sulphite pulp, but many mills use magnesite and others dolomite. Limestones, which contain six or even eight per cent of silica, alumina and iron oxide, have been used, but in general the purer the limestone, the more it is preferred. The iron in the limestone injures the whiteness of the stock and renders the bleaching more difficult. Such impurities as mica, graphite and other carbonaceous substances, make the limestone unsuitable for use in the towers, for these impurities are carried over into the stock from which they cannot be removed by bleaching. The limestone should be moderately finely granulated, for the coarse granules tend to fall into dust and clog up the tower. Very finely divided limestone, however, does so slowly that the production of digestion liquor from the tower is much reduced.

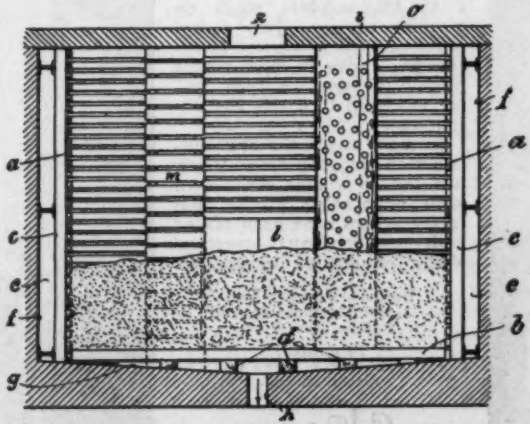
In using caustic lime for the causticization of digestion liquors in the alkaline digestion processes, it is preferably to use a product with as high a lime content as possible and one which does not contain magnesia. Zellstoff und Papier, 1931, pages 479-480.

Effect of Sulphite Digestion on the Length of Pulp Fibers

IT is difficult to answer the question as to whether or not the length of the pulp fibers is shortened by the action of the digestion acid, for the length of the fibers in any wood sample varies considerably. An average length of fibers must be determined and care must be taken to see that the fibers are not injured by cutting or breaking before digestion. A method is described for taking the sample. The wood sample is digested in two stages in a container which is made of perforated copper plates which has a coating of lead. The container is placed about three meters below the neck of the digester, so that it is washed around by the digestion acid during the entire progress of the process. When the digestion is ended and the gas pressure is released in the digester, then the container is removed and placed unopened in water, which may be renewed several times. The container is then opened and the wood sample removed, retaining its original form. The water is renewed and the sample is washed therein and then prepared on a piece of blotting paper. The sample is finally colored with a solution of half a gram of methyl violet in one liter of water, after the adherent water has been allowed to drop off. The deep blue colored section is then shaven carefully so that the fibers are removed which have been injured during the splitting of the wood. Microscopic examination is made of the fibers. The net result of the investigation was that the average length of the fibers was not changed by the digestion process. Aleks Lampen. Zellstoff und Papier, 1931, pages 521-4.

Silo for Dehydrating and Storing Paper Stock

THE silo, which is shown in the accompanying illustration, can be used for the storage of paper stock for periods of more than a year, the stock being in the dehydrated state. As may be seen, the passages or openings through the side walls (a) and the bottom (g) of the silo, which is advantageously constructed of reinforced concrete are made in the form of slots. This is done in such a manner that the side



walls and the bottom consist of grate-like rods arranged at a definite distance from one another and jointed together by the endpieces (c) and (d) to make a closed space. The latter is enclosed within a masonry chamber (f) with the airspace (e) left on the sides. The bottom of the chamber is contracted at the lower end to form a funnel shaped part with the entral discharge opening (h). The chamber is closed

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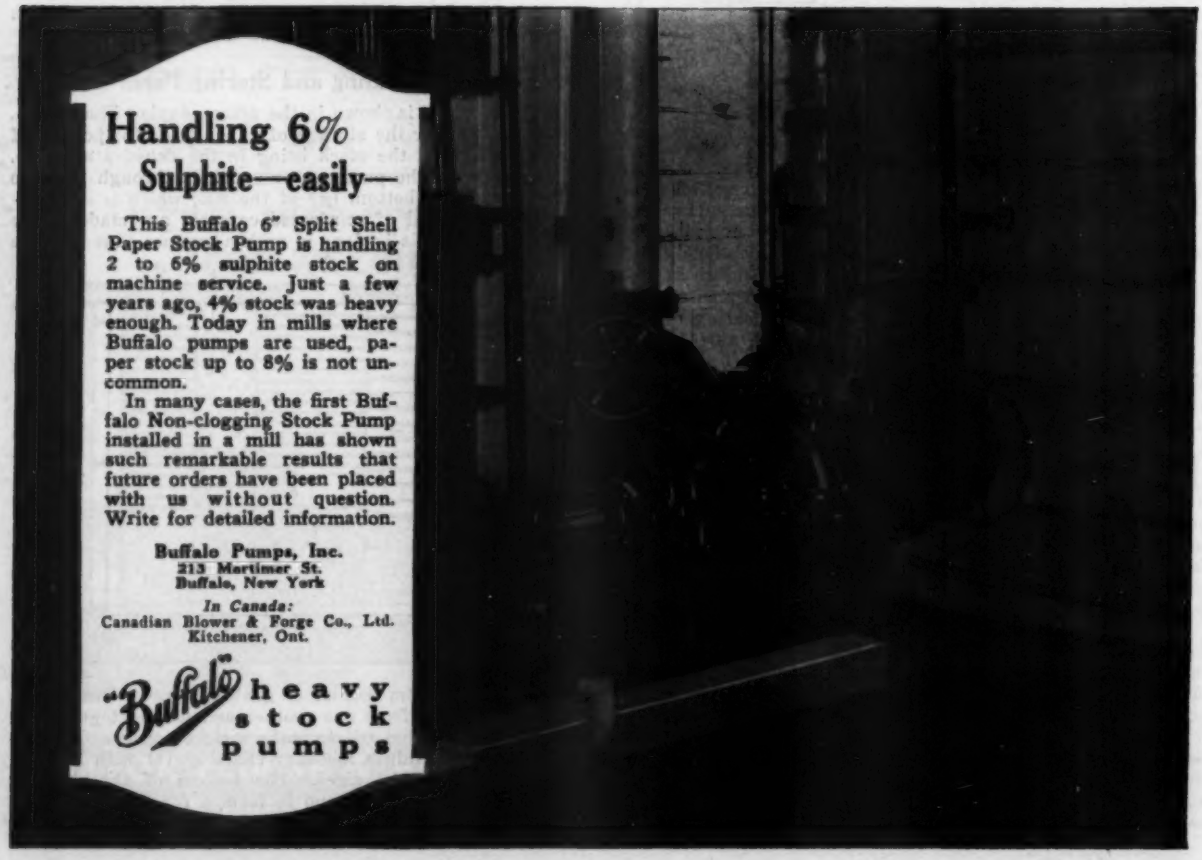

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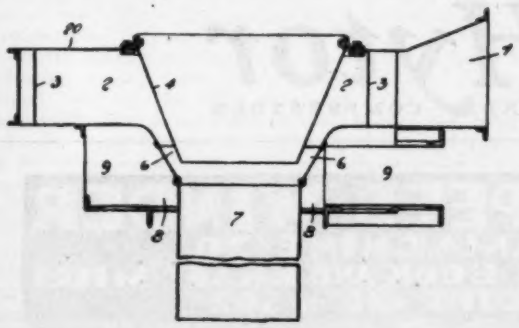
by means of the cover (i), which also contains the feed inlet (k). The discharge door (l) is located in the back of the silo.

The concentrated mass of paper stock is fed into the chamber through the opening (k) by means of pumps or in some other suitable manner. The mass distributes itself throughout the silo, rises higher and presses the water contained in it through the slots in the side walls (a) and the bottom (b) and into the run-off towers (m) and (o). The slot-like form of the run-off openings affords the possibility that the dehydration takes place rapidly and to a high degree without any of the stock being carried along with the water and out of the silo. The water finally reaches the outlet (h) and is removed. The dehydrated mass remains until ready for use, when it is removed through the discharge opening (l). Adolf Sauer, Muenchen, Germany. German Patent No. 528,572.

Device for Feeding Pulp Digesters

THE feature of the device is that the material that is being fed to the digester is kept in rotation by means of a current of air. The air in fact carries this material along with it into the digester. The apparatus is shown in the accompanying illustration. The air, which is compressed by means of a blower, enters through the inlet (1) and passed through the conduit (2). This conduit is bounded outwardly by the spiral shaped wall (3) and inwardly by the cone-shaped charging funnel (4). The compressed air finally emerges through the nozzles (6) which are formed by the annular shaped opening built around the charging funnel (4). The compressed air thus caused a vigorous agitation of the stock that is being charged into the digester through the passage (7). The result of this action is that the stock is fed into the digester without encountering any resistance to its flow.



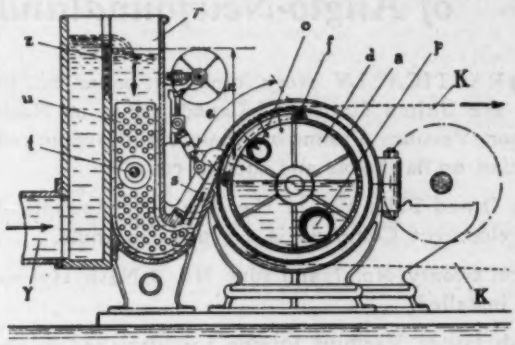
After the compressed air has performed its task in helping to charge the digester, it escapes through the outlets (8) and the air distributing changer (9) and passes back again to the blowers to be recompressed. Inasmuch as the wall (3) can be shifted, it is possible to regulate the size of the nozzle (6) and thus control the entire apparatus. Albert Fresk, Robertsfors, Sweden. German Patent No. 526,183.

Dehydrating Machine for Paper and Paperboard Stock

THE illustration gives a cross-section view of the breast roll and the feed box. The dehydration takes place on the perforated cylinder (a) which is rotated and which is open on both sides. A hollow suction cylinder (d) is arranged within the first cylinder and the annular space between the two cylinders is such, that it surrounds almost the entire inner space of the perforated cylinder. The open part of the suction cylinder (d), which forms the suction zone (e), is closed with suitable packing devices (f). The back water pump is connected at the lowest point in the suction cylinder (d) that is at (p), which the suction air pump is connected at the point (o) in the top of the cylinder and thus maintains a vacuum within the upper part of the suction cylinder (d). The result is that air and back water are removed separately.

A feed box (r) is arranged along the suction roll in such a manner that the mixture of water and stock is forced under pressure in a free stream over the entire width of the breast roll tangentially thereto. The quantity of the stock which is thus fed to the breast roll is controlled by means of the nozzle which is provided with a movable flap (s).

Plates (u), which may be perforated or not, are arranged on a shaft (t) in the feed box (r), a sufficient number of them being provided parallel to one another or inclined to one another. These plates are set into motion by a crank drive (v)



and thus keep up a pulsation in the mixture of stock and water, which makes sure that the fibers are uniformly distributed throughout the same. The flow of stock into the box (r) takes place at (y) and a weir is built at (z) in order to control the height of the column of stock, thus controlling the height of flow (h) which regulates the pressure with which the stock flows against the dehydrating cylinder. Paul Pope, Herischdorf, Germany. German Patent No. 528,352.

Sulphite Pulp

IT has been proven, that very favorably and economically-important results are obtained, when the process of the disintegration of the wood chips during the digestion with sulphite liquor is not carried to completion, that is to the state of pulp in a one stage process. Much better results are obtained when the process is carried out in two stages, and thus in the second stage the partially digested and disintegrated wood, that is the lime lignosulphonic acid-carbohydrate compounds that are formed in the digestion, are redigested with fresh sulphite liquor. The first stage of the digestion process is accordingly carried out with the aid of digestion liquor that is as strong as possible, while liquor of lower concentration is used in the second stage of the process.

The advantage of such a process lies in the fact, that in the first stage, organic substances, such as resins and sugar, pass into solution and are carried away in the first waste liquor. Hence these substances do not exert their usual disturbing action on the digestion, that takes place in the second stage with the aid of weaker liquor.

The digester, which is charged with pine wood chips and a digestion liquor, containing a total of five per cent sulphurous acid and one per cent lime in accordance with the usual process, is heated to a temperature of 105 to 110 deg. C. and maintained at this temperature for a period of four hours. Then the entire mass of digestion liquor is slowly drawn out of the digester and the latter is refilled with fresh digestion liquor, which has been previously preheated in certain instances and which contains 0.8 per cent of total sulphurous acid and 0.25 per cent of lime. The digestion is now carried out at a temperature of 140 deg. C. and the mass of wood and liquor is maintained at this temperature for a period of eight or nine hours. Then the gas is released from the digester, the contents of the same are washed, removed therefrom and treated in the usual manner. I. G. Farbenindustrie A. G., Frankfurt-am-Main, Germany. German Patent No. 527,950.

Sizing Agent and Filler

THE new sizing agent ad filler, which is recommended for use in the manufacture of paper, is prepared by admixture of an alkaline emulsion of stearin, for example stearin-borax emulsion, with sodium zincate and sodium albuminate. This mixture is claimed to give correctly sized and filled writing and printing papers, possessing a high de-

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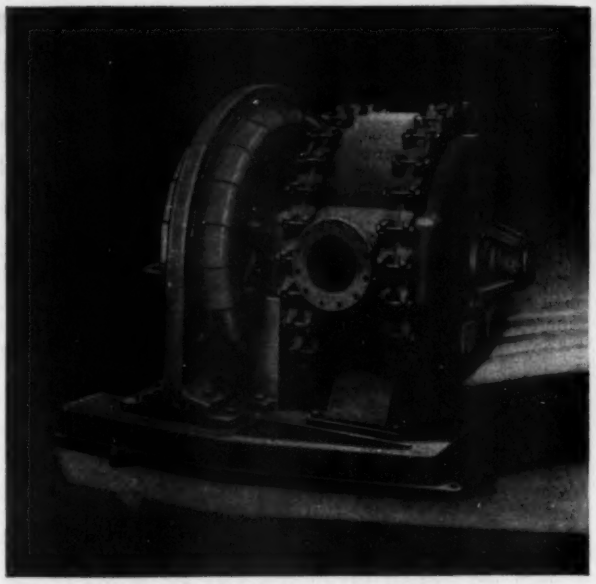

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gree of whiteness. The pores of the paper fibers are filled by the very finely distributed particles of zinc oxide and a satin-like finish and smoothness is obtained by means of the finely distributed particles of stearin, both of which particles are held to the fibers by the colloidal film formed by the albumen. Such papers do not lose their sizing quality and are less hygroscopic than the papers that are sized with the aid of rosin or animal glue, so that this new method of sizing is particularly well adapted to the manufacture of papers which have to have a long life and unchangeableness.

Thus, for example, 100 parts by weight of stearin are melted together with 100 parts by weight of borax and a little water, until a uniform emulsion is formed. 100 parts by weight of casein are swelled up with 20 parts by weight of caustic soda and 50 parts by weight of sodium zincate are added to the solution. The albuminate is then added to the stearin emulsion and finally the zincate is introduced at a temperature below 60 deg. C. The mixture is well stirred and is then ready for use. Fritx Arledter, Koeln-Kalk, Germany. German Patent No. 528,312.

Fireproofing by Impregnation

THE importance of fireproofing fabrics, wood, paper, paperboard and other inflammable fibrous products is discussed. The practice is traced back to the ancient Romans. The technology of the process is very simple. The article is simply impregnated with a solution of the fireproofing salt and then dried. A large number of different chemicals have been proposed for this purpose, which differ more or less in their properties and produce different results. This cannot be determined beforehand by theoretical considerations. The most useful of these chemicals are listed and their adaptability to the fireproofing of fabrics, paper, etc. is discussed. Sodium tungstate and sodium stannate possess outstanding fireproofing properties. They are, however, too expensive for common use. Cheap ammonium sulphate, which is also a good fireproofing agent, acts deleteriously on the colors of the paper or fabric and on the fiber substance itself. Ammonium chloride, while not as injurious as the sulphate, has however the disadvantage that it is readily vaporized and removed from the paper treated with it. Ammonium-magnesium phosphate and ammonium phosphate as well as magnesium chloride are suitable only for special purposes. Water glass is well suited for impregnating the most varied materials; it is cheap and relatively harmless. It is however emphasized that the action of these chemicals may be quite different with different materials and that it is therefore well to make a preliminary test to establish their usefulness for the given purpose.

Attention is called to the process which was developed by Eichengruen and patented in German Patents Nos. 355,107 and 390,840, in which ammonium bromide is used as the fireproofing agent. Ammonium salts of organic and inorganic acids are also used. The material is first impregnated with the solution of the salt, then dried and calendered or ironed. The active agent is used in a concentration of 15 to 20 per cent in aqueous solution. Der Papierfabrikant, 1931, 732-4.

Selective Absorption of Aqueous Solutions by Wood Fibers

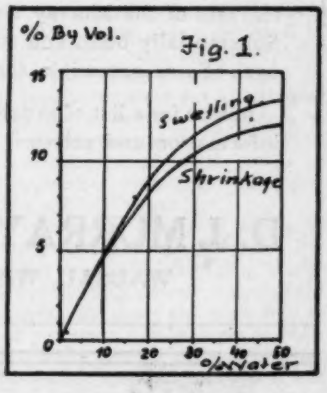
IMPREGNATION experiments, which were carried out at temperature in excess of 100 deg. C., proved that the solutions penetrated into the fibers of the wood chips not without a certain change in concentration. These changes vary according to the nature of the salt solutions used. Sodium chloride solutions penetrate into the wood without very much change. In the case of phosphate solutions, it was found that much less phosphate is absorbed by the wood fibers than corresponds to the concentration of the solution used. The explanation of the varied penetration of this salt into various woods is that the size of the molecule is too large to permit its penetration into finer capillary passages in the wood. The wood therefore acts as a semi-permeable wall.

It was also found that sulphite solutions experience difficulty in penetrating into wood. The careful regulation of the rise of temperature in the case of bisulphite digestion, and the fact that the maximum temperature is not reached immediately, must be explained in the following manner—that not only the water but also the bisulphite substance itself must diffuse in sufficient quantity into the interior of the wood cells, before the lignin can begin to be dissolved out of the wood.

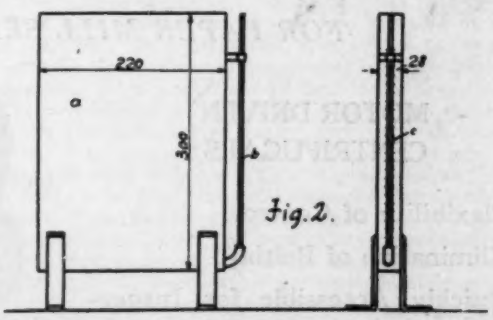
In the bisulphite impregnation experiments, which were carried out at a temperature of 110 deg. C., a change in the experimental conditions was made which enabled the wood to be analyzed a few minutes after the end of the impregnation period. Several new observations were made in the course of these experiments. The bisulphite impregnations showed that the substances absorbed by the wood from the bisulphite solution may vary in accordance with the composition of the various woods treated. A bibliography is given. Alf af Ekenstam, Svensk Papperstidning through Zellstoff und Paper, 1931, page 465.

Weight of Unit Volume of Wood

THE author points out the lack of a definite basis for determining the quality of pulpwood and reviews the work that has been done on this subject, that is on the determination of the dry fiber substance in the wood by a process which will give results translatable into practical terms. Fig. 1 shows the relation between the shrinkage of the wood as a function of the water content. These curves show that it is absolutely necessary to know the exact water content of the wood in determining the weight of unit volume, and that all results that are reported thereon must be based on the same percentage of water in the wood.



A method for the determination of the weight per unit volume was worked out with the aid of the apparatus which is shown in Fig. 2. Thus a wooden disc of 2.5 cm. width and 12 cm. diameter has a volume of approximately 280 cc., and in the case of a container width of 2.8 cm. and length of 22 cm., this wooden disc corresponds to a height of about 4.6 mm. or one cc. of displaced



volume to a height of 0.16 mm. The aforementioned apparatus is properly graduated so that the weight of the wood per unit volume may be read off the scale. In the figure, (a) denotes the copper container, (b) the capillary tube and (c) the graduated scale. Tabulations giving the results obtained by the use of this apparatus are given in the original article. Tests were made both on pinewood and aspenwood. Dr. H. Niethammer. Der Papierfabrikant, 1931, 557-560.

Philip R. Allen, president of Bird & Son Inc., uttered much optimistic prophecy recently. He believes in New England's future he said but also in its present. On that basis the company has started a big advertising campaign to push the sale of their products in New England, believing this section has felt business depression relatively less than the rest of the country.

CLEANER WOOD at LOWER COST

with the MURRAY DOUBLE KNOT SAW

Ovals show wood before and after sawing. Note lack of waste

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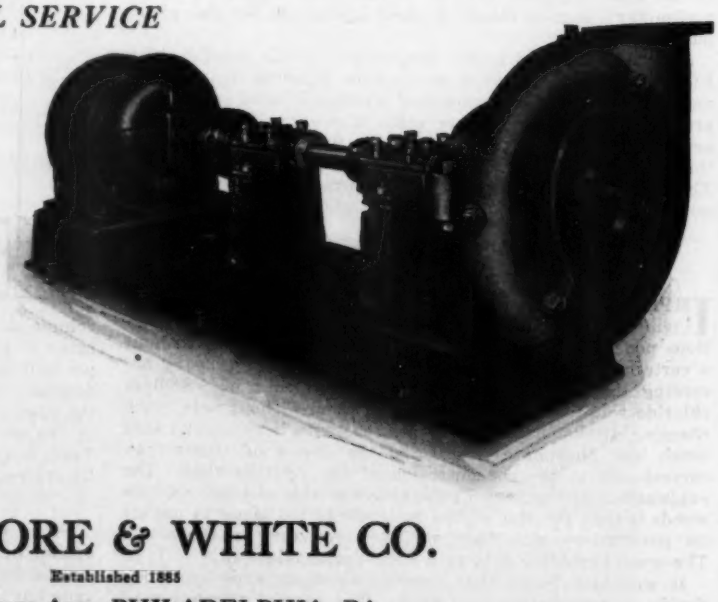

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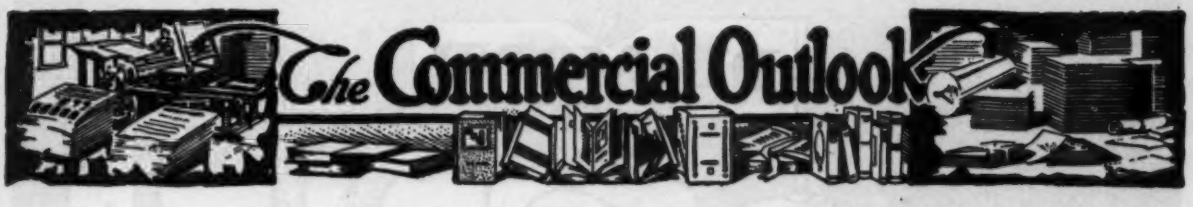

New York, December 1, 1931.

ANOTHER year is drawing to a close and there is little doubt that a large majority of paper manufacturers and merchants will be glad to see doleful 1931 come to an end. In this connection, it is readily observable that sentiment regarding the new year is becoming more confident. Whether this is simply a matter of psychology so frequently associated with the outset of a new year is hard to determine, but there is no question that papermakers and distributors are looking ahead to better times during 1932.

The market has scored scant improvement during the past month. For a time there was a distinct increase in demand for paper, and indications that the better activity in the market would gain momentum and eventually carry the market onward to a more gratifying position, but during the last several weeks the situation has quieted to a pronounced degree. Just what is the cause of this is difficult to explain; however, it is agreed that general business has not gone ahead in a manner expected of it by this time, and business in paper consequently has failed to broaden. Another and very salient factor which has kept demand for paper within narrow bounds is that consumers with few exceptions are more intent on reducing their stocks for the approaching year-end inventory period than they are in augmenting their supplies, and such buying as has been engaged in lately has been only to satisfy urgent and immediate needs. Ordinarily, the low prices which are now prevailing on paper would attract consumers into the market and doubtless lead to a spurt of demand, but most paper consumers, converters and jobbers are not by any means in a buying frame of mind under present circumstances existing in their own fields, and low prices offer little inducement to them.

However, the belief is common within the industry that a much improved market will be seen soon after the turn of the year, the theory of this belief being that after inventories have been compiled, consumers will be more inclined to lay in stocks of paper, not only against current requirements but also in anticipation of larger needs which by all rights and reason should develop in the new year. On all sides the opinion is expressed that the deflation of commodity prices has reached its zenith, that markets now are resting on bottom levels and are in numerous cases lower than is warranted, and that buying policies will soon be revised sufficiently to make for a much larger movement of commodities in general. In short, the feeling is that the depression is reaching an end, and paper manufacturers believe that one of the first commodities to share in the anticipated upturn in business will be their product.

Production of paper in the United States showed a slight increase in September as compared with the preceding month, according to reports from identical mills to the American Paper and Pulp Association. A total of 422,922 net tons of paper and board of all kinds was produced in September, against 419,407 tons in August. The daily average output in September was 5 per cent above that of the preceding month but 7 per cent below the production in September last year. Production in the first nine months of 1931 aggregated 3,941,597 tons, showing a 9.5 per cent decrease from the 4,355,299 tons produced by identical mills in the same period of 1930. Shipments from mills during September last were 424,831 tons, or slightly in excess of the month's output, and contrasted with 420,301 tons in the preceding month, while stocks on hand at producing mills at the end of September totaled 257,604 tons, against 259,596 tons a month previously.

Newsprint production by United States and Canadian mills in October reached a total of 281,369 tons, as compared with 269,653 tons produced in September this year and 319,267 tons in October last year, according to the News Print Service Bureau. Shipments during October were in excess of the production, thereby effecting a substantial reduction in mill stocks for the month. Shipments from both United States and Canadian mills totaled 290,341 tons, against 268,484 tons in September and 324,556 tons in October, 1930.

Paperboard production in the United States in September amounted to 221,684 tons, showing an appreciable gain over the 213,614 tons manufactured in the preceding month, and comparing favorably with 228,257 tons produced in the similar month a year ago, according to the monthly summary of the board industry compiled by the U. S. Department of Commerce. Board production aggregated 1,988,379 tons in the first nine months of this year, contrasted to 2,067,651 tons in the corresponding period of 1930. New orders received by mills in September called for 235,382 tons, against 215,752 tons in the preceding month, and unfilled orders held by manufacturers at the end of September were for 61,327 tons, compared with 47,206 tons a month before. Shipments of board from mills during September totaled 221,261 tons, against 218,244 tons in the preceding month, while stocks on hand at mills at the end of September were 79,580 tons, contrasted with 79,157 tons at the end of August last.

There has been a seasonal increase in newsprint consumption since the pre-holiday shopping season commenced. Department stores and other retail merchants are using larger display space in the daily newspapers to advertise their holiday wares, and publishers in numerous cases and especially in the larger cities have found it necessary to add pages to their editions. There is no change in the price situation in print paper, and none rumored. The market from all indications will go into the new year with present contract prices in force, and with little likelihood of any revision taking place for sometime to come.

Wrapping paper prices are still uncertain and on the easy side. No further decline of a definite sort has been reported, but it is problematical how low buyers are able to buy in some instances. In other words, competition for orders is still exceedingly keen, and signs are that some manufacturers are granting price concessions to land the business desired. Tissues have enjoyed a fair demand recently, and prices have held their own although the market undertone has been none too firm. Fine papers are moving principally in small lots; printers and other buyers are absorbing supplies as they discover needs to be filled, and are seldom ordering ahead. It is believed that stocks of fine papers in the hands of consumers and distributors all over the country are subnormally light, and manufacturers expect demand to broaden rapidly once it starts to expand. Book papers are in moderately good call from contract buyers but transient demand is slow and of a character affording scant support to the market; nevertheless book paper prices are generally maintained.

Boxboard demand has slumped considerably, as it usually does near the end of the year. Mills are eager for orders and are said to be shading prices in some cases though quoted rates have registered little change. Roofing and building papers are reported almost without a market at present. Some of the roofing felt mills in the East have shut down and remained closed for as long a period as four consecutive weeks.

Dr. Bjarne Johnson, director of laboratories, Hammermill Paper Company, Erie, Pa., returned to New York by the Aquitania of the Cunard line December 2, after a 13-months' absence in Europe. During his stay abroad he visited many of the educational institutions in Germany, Sweden and Norway. He is now in Erie, having stayed over in New York for one day only.

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YOU will find the sterilizing quality of Diamond Liquid Chlorine ideal for slime control, as well as a most effective bleaching agent in quality paper production.

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Papermaking Rags

Despite the fact that dealers, and some consumers too, were of the opinion that prices of papermaking rags had touched rock bottom and that it was most improbable any further decline would be witnessed, values of quite a few grades of rags have tumbled to new low levels in a market which has displayed almost no activity of consequence during the past month. The situation has now reached the point where it can well be stated that demoralization has set in. Notwithstanding what would appear to be a decidedly firm technical market condition founded on none too plentiful supplies of certain kinds of papermaking rags, in the face of extremely light importations, and disregarding a drastic decrease in the collection and production of rags, prices have sagged to cheaper levels—all because demand has been little short of nil. Prices are strictly nominal in nearly every instance, as it is practically anybody's guess at just how low rags can be obtained by buyers.

Dealers put much emphasis on the small stocks of many descriptions of rags that are available, more especially new cuttings; packers lay stress on the pronounced decrease in collections and grading of old rags throughout the country, and importers point to the startling drop in receipts of rags from foreign sources, yet all these factors are not sufficient to sustain prices while demand is of such slight proportions. Paper manufacturers are not buying obviously because they are not in need of supplies. Although consumers readily acknowledge that rag prices are on attractively low levels and that it perhaps would be good business to lay in stocks, there is little or no disposition to buy other than to cover actual requirements, one cardinal reason being that papermakers are more intent on keeping inventories down for the approaching year-end than they are of taking advantage of the low market in augmenting their supplies.

Prices of some grades of new cotton cuttings have declined appreciably. White shirt cuttings of No. 1 quality have been reported sold to mills at as low as 4.50 cents per pound f.o.b. shipping points, unbleached muslins at 5.75 cents, blue overall cuttings at 4.25 cents, and light silesias at 4.25 cents. Prices of washables and fancy shirt cuttings are very uncertain, with reports heard of offerings by dealers to mills at 1.50 cents a pound, and even less. So few sales of some cuttings have been recorded that it is next to impossible to determine what market values really are, the situation being such that only buyers willing to test out sellers are in a position to ascertain at what prices purchases can be made.

Roofing rags have been in very slack demand and market quotations have moved to lower levels. No. 1 domestic roofing stock is reported available at 60 cents per hundred pounds and No. 2 packing at 45 cents f.o.b. dealers' shipping points. Practically no business whatsoever has been done in foreign roofing rags, prices of which are mainly nominal. Old white and blue cottons are in slow call also and on cheaper price levels. Repacked thirds and blues are freely offered in some quarters at 1.25 cents a pound at shipping points, while a fair quality packing of No. 1 old repacked white rags is said to be available at 3.50 cents a pound.

Imported rags in general are under neglect, since consumers are enabled to get such limited quantities of rags as they desire from domestic dealers at relatively lower costs. Market prices abroad are above those prevailing in this country, and shippers are reported making few offers here.

Average quotations f.o.b. shipping points and ex dock New York, many of which should be considered nominal, follow:

New Stock	New York and Chicago
White shirt cuttings, No. 1	4.50– 4.75
White shirt cuttings, No. 2	3.50– 3.75
Fancy shirt cuttings	1.50– 1.75
Washables, No. 1	1.50– 1.75
Unbleached muslins	5.75– 6.00
White lawns	3.75– 4.00
Overall cuttings, blue	4.25– 4.50
Black silesias	2.50– 2.75
Canton flannels, bleached	5.25– 5.50
Canton flannels, unbleached	4.25– 4.50
Shoe cuttings, bleached	4.50– 4.75
Shoe cuttings, unbleached	4.00– 4.25
Light silesias	4.25– 4.50
O. D. khaki cuttings	4.00– 4.25
Mixed khaki cuttings	3.50– 3.75
Corduroy cuttings	2.25– 2.50
Cottonade cuttings	1.75– 2.00
Linens, No. 1 white, foreign	7.00– 7.50
Light prints, foreign	2.25– 2.50
Old Stock—	
Whites, No. 1, repacked	3.50– 4.00
Whites, No. 2, repacked	1.75– 2.00
Whites, house soiled	1.40– 1.60
Whites, street soiled	1.20– 1.40
Thirds and blues, rough	.65– .80
Thirds and blues, repacked	1.20– 1.40
Lace curtains	2.75– 3.00
Black stockings	1.75– 2.00
Cotton canvas, No. 1	3.00– 3.25
White cotton batting	1.00– 1.25
Roofing, No. 1 (cloth strippings)	.60– .70
Roofing, No. 2	.40– .50
Linsey garments, foreign	.75– .80
Dark colored cottons, foreign	.60– .65
Blue linens, foreign	2.75– 3.00
Gray linens, foreign	3.00– 3.25
White linens, foreign	4.75– 5.00
Light prints, extra foreign	1.75– 2.00

Rope and Bagging

Quotations on old rope are well maintained but the market is bare of worthwhile activity, and as would be expected since sellers so far outnumber buyers the tone of prices is none too firm. Most dealers are asking and receiving about 1.75 cents a pound f.o.b. shipping points for such limited parcels of domestic No. 1 old manila rope as they are succeeding in selling, but papermakers assert they are in little need of supplies and are buying only on a very small scale. Foreign old rope is between 1.50 and 1.75 cents a pound ex dock New York or other American Atlantic ports.

Demand for scrap bagging has diminished considerably and prices have moved lower. No. 1 light scrap bagging is reported available at a cent per pound at shipping points and probably at slightly under this figure, while roofing bagging commands only in the vicinity of 40 cents per hundred pounds f.o.b. dealers' points. Old gunny bagging has ruled relatively steady in value at around 1.30 cents per pound.

F.o.b. shipping point and ex dock New York quotations follow:

Gunny, No. 1 domestic	1.25– 1.35
Gunny, No. 1 foreign	1.25– 1.35
Scrap bagging, No. 1	.90– 1.00
Roofing bagging	.40– .45
Wool tares, heavy	1.15– 1.25
Wool tares, light	1.10– 1.20
Manila rope, No. 1 foreign	1.50– 1.75
Manila rope, No. 1 domestic	1.50– 1.75
Sisal strings	1.25– 1.50
Mixed strings	.60– .70

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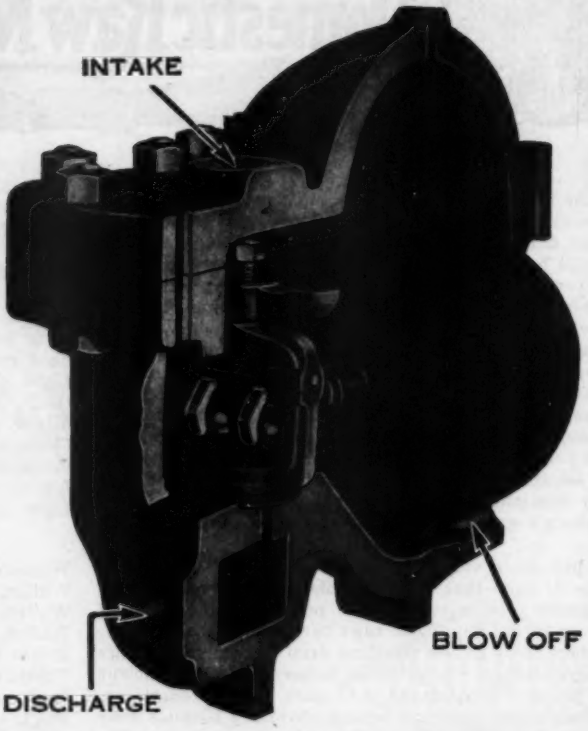

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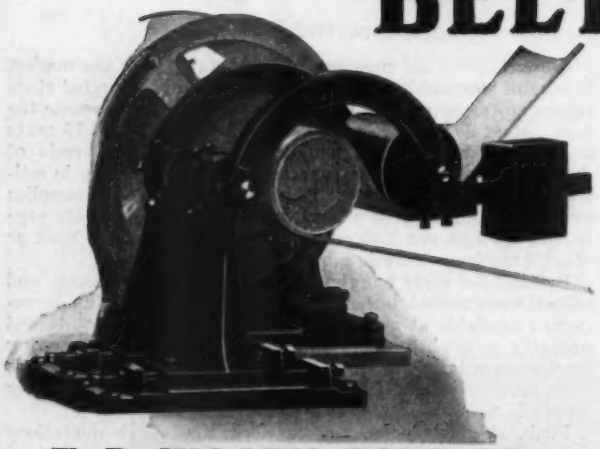

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It increases tractive effort by wrapping the belt around pulleys, increasing arc of contact and avoiding heavy, destructive initial belt tension; permits the drive being set up on extremely short centers, saving floor space and belt length.

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Old Paper

The past month has witnessed a downward trend in prices of old paper. The market has been much quieter than during the period of fair activity in September and October, and buyers have been able to cover their restricted wants at substantial reductions in cost. Indications are that consuming mills in general are buying nothing but urgently needed supplies while bent on cutting down their stocks in preparation for the coming inventory-taking season.

Shavings have reacted in price to where No. 1 hard white are reported available at 2.10 cents a pound f.o.b. shipping points, and No. 1 soft white shavings at 1.70 cents. Higher prices than these are, of course, asked for extra quality packing of shavings. Old kraft paper has receded in price to a cent per pound at dealers' points, folded news to 30 cents a hundred pounds, and No. 1 mixed paper at 20 cents. Above these figures are quoted in the Middle West, however, on news and mixed paper, the prices mentioned being those prevailing in the East. Books and magazines are the one grade holding steady in value and are reported bringing 65 to 75 cents per 100 pounds for No. 1 heavy magazines.

The following are quotations f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	2.10– 2.50
Hard white shavings, No. 2	1.80– 2.00
Soft white shavings	1.70– 2.10
Colored shavings	.50– .60
Heavy book, No. 1	.65– .75
Crumpled book, No. 1	.50– .60
Ledger stock	.60– .90
Kraft, No. 1	1.00– 1.10
New kraft cuttings	1.50– 1.65
White blank news	1.50– 1.60
Manilas, No. 1	.45– .55
Manilas, container	.30– .40
Folded news	.30– .40
Sulphite mill wrappings	.40– .50
Old corrugated boxes	.35– .45
New corrugated box cuttings	.40– .50
Mixed paper, No. 1	.17½–.25
Common paper	.15– .20

Pulpwood

Current demand for pulpwood is reported quiet, with little or no open-market buying and with prices uncertain. Pulp manufacturers appear to have their requirements covered under present market circumstances, and are seldom seeking additional amounts of wood.

Exports of pulpwood from Canada in October amounted to 96,780 cords, valued at $968,285, all of which were to the United States, compared with 117,584 cords of a value of $1,205,286 in the preceding month, and 113,218 cords of a value of $1,186,804 in October, 1930.

Mechanical Pulp

There have been occasional spurts of demand reported for mechanical pulp but the aggregate movement of supplies into consuming channels has been far below normal, and market prices have declined. Producers in Canada are said to be freely accepting $20 a ton f.o.b. pulp mills for prime groundwood for prompt shipment, and some sales have been reported at less than this price, while domestic grinders are asking in the vicinity of $24 a ton at pulp plants. There is some supply of pulp in the market which buyers are picking up at depressed prices, and the result is that it is difficult to determine exactly what market levels really are.

Production of groundwood in the United States in September amounted to 62,998 net tons, compared with 56,965 tons produced by identical mills in the preceding month, according to reports to the American Paper and Pulp Association. Stocks at producing mills at the end of September totaled 53,469 tons, against 59,432 tons a month before.

Chemical Pulp

Consumers are manifesting but limited buying interest in domestic wood pulp. There is, of course, a certain tonnage

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of supply moving to paper and board mills against contracts, and transient buyers are occasionally placing some orders, but the market lacks activity of important character or scope and the price situation is altogether in favor of those on the buying side. Bleached sulphite of Pacific Coast origin is reported available at as low as 2.35 cents a pound Atlantic seaboard, and it is possible that some sales have been made at prices on a delivered basis which figure out even under this ex dock price. Unbleached sulphite is around 2.15 cents f.o.b. pulp mills for book grades and 2 cents for newsprint grades, while bleached soda pulp is offered at 2.75 cents per pound delivered paper mills. Kraft pulp prices are on a wide range of from about 1.80 cents up to 2.50 cents a pound at producing mills, depending on the quality and source of the pulp concerned.

Mills in the United States produced a total of 90,688 net tons of chemical pulp in September, contrasted to 94,331 tons in the preceding month, according to identical mill reports to the American Paper and Pulp Association. Stocks at producing mills at the end of September amounted to 19,965 tons, compared with 19,248 tons at the end of August.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	2.35– 4.50
Easy bleaching sulphite	2.20– 2.40
Unbleached sulphite, No. 1 strong (news grade)	1.90– 2.15
Unbleached sulphite, No. 1 book	2.00– 2.25
Soda pulp bleached (delivered)	2.60– 2.75
Mitscherlich, unbleached	2.40– 2.60
Kraft	1.80– 2.50
Screenings, refined	(Nominal)

Chemicals

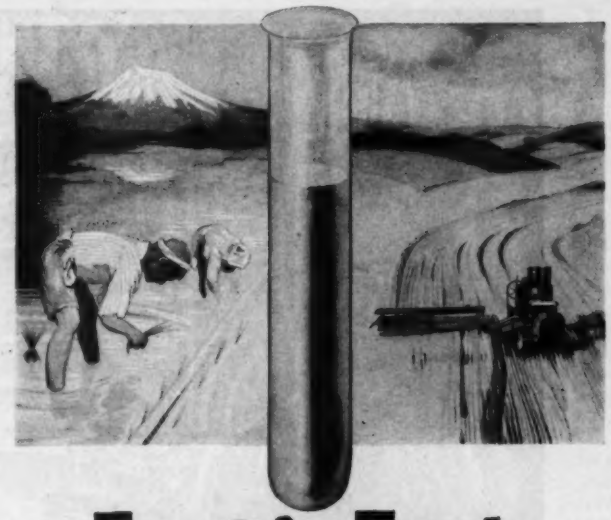
While the principal movement of papermaking chemicals is against contracts, with transient demand at a low ebb, quoted prices in most cases exhibit steadiness. Casein is selling at 7.50 to 8 cents a pound for the domestic product and 8.50 to 9.50 cents for imported casein, duty paid. Bleaching powder is quoted at 1.75 to 2 cents a pound at works, quotations holding to schedule. Prices of soda ash and caustic soda are maintained. Brimstone is $18 to $20 a ton at mines, depending on the tonnage involved.

Average quotations are as follows:

Alum, lump ammonia	3.50– 3.75
Alum, lump starch	3.75– 4.00
Blanc fixe, powdered	3.75– 4.00
Bleaching powder	1.75– 2.00
Brimstone (long ton, at mine)	18.00–20.00
Casein (duty paid)	7.50– 9.50
Caustic soda, soliw, spot delivery	2.50– 2.25
China clay, domestic washed	7.00–11.00
China clay, foreign	11.00–15.00
Rosin	4.25– 4.35
Satin white	2.00– 2.25
Soda ash, 58 per cent light (bags)	1.15– 1.25
Starch, papermaker's, in bags	2.77–
Talc (ton)	16.00–18.00

An enumeration of corporation returns for 1930 classified by industrial groups, is a feature of the weekly business review of the American Paper and Pulp Association for December 2, 1931. Of the 2,026 paper and pulp and paper products firms reporting 1,084 firms, or 54 per cent, made profits in 1930. In 1928, 66.6 per cent of the corporations in the paper, pulp and products industry reported profits; in 1926, 68 per cent reported profits. In 1920, 79.7 per cent of the corporations in the paper, pulp ,and products industry reported profits, while in 1921 only 43.6 per cent of the corporations reported a profit.

The American Paper Machinery and Engineering Works, Glens Falls, N. Y., has recently been granted patents on the Apmew Recording Paper Stuff Regulator and the Apmew Recording Consistency Regulator. The United States Patent Office allowed 15 claims on these regulators. Patents have been applied for in Canada and patents are pending in foreign countries.



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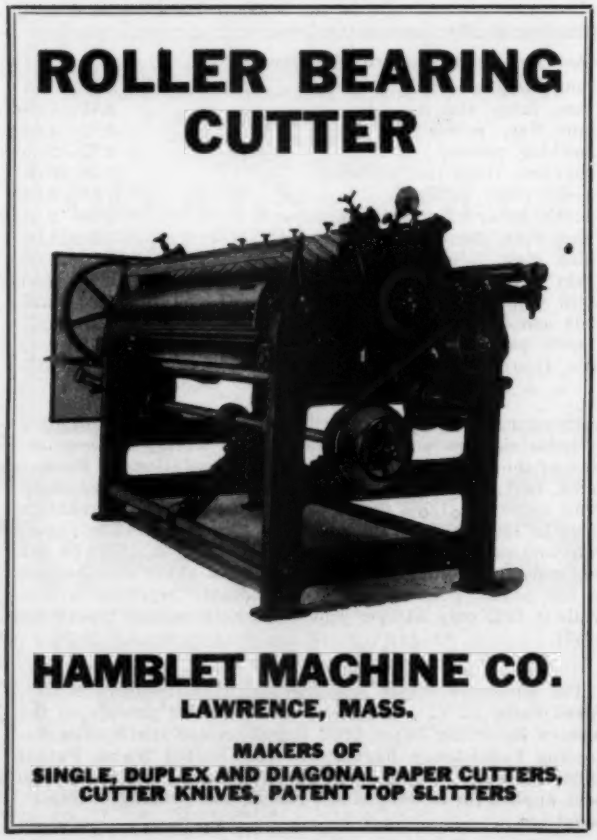
New feature for reversing web in winding.
Cameron patented method for winding
rolls wire side out when required.
CAMERON MACHINE COMPANY 61 Poplar St. BROOKLYN, N.Y.

Pneumatic Package Press
Triple Shaft Toilet Winder
Creping Machine
Napkin Embosser and Printer
Automatic Core Cutter
Paper Converting Equipment
Machinery from Hudson-Sharp is in use in converting mills throughout the United States with installations in many foreign mills.
Standard designs are obtainable for general purposes but special purpose machines will be designed by our engineers to efficiently meet any special mechanical problem at hand.
Circulars and catalogue of our line are obtainable upon application.
H-S MACHINE CO.
Hudson-Sharp Machine Co.
GREEN BAY, WISCONSIN
Chicago Office: 574 Wrigley Bldg.
Manufacturers and Designers of Special Machinery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SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS,
CUTTER KNIVES, PATENT TOP SLITTERS

New Papers

Writing—	
White rag	13– 40
White sulphite	6– 30
Colored rag	12– 40
Colored sulphite	6– 30
Ledger—	
White rag	13– 40
White sulphite	8– 30
Colored sulphite	8– 30
Colored rag	12– 40
Bond—	
White rag	13– 40
White sulphite	6– 30
Colored sulphite	6– 30
Colored rag	12– 40
Book—	
No. 1 S. & S. C.	5.25– 8.00
Machine finished	5.00– 8.00
English finish	5.00– 8.00
Coated and enameled	6.75–10.00
Lithograph, M. F.	7.00–11.50
Newsprint—	
Rolls, contract, per ton, delivered New York	57.00–
Rolls, transient, per ton, delivered New York	57.00–
Sheets, per ton, delivered New York	62.00–
Sideruns, per ton, delivered New York	42.00–46.00
Cover stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.65– .70
No. 2 white, 40x36	.55– .65
No. 1 manila, 24x36	.55– .65
Kraft	.65– .70
Wrapping—	
No. 1 kraft	4.25– 5.00
No. 2 kraft	3.00– 3.50
Southern kraft	2.75– 3.25

Boards—	New York and Chicago
News	24.00–27.50
Straw	35.00–40.00
Plain chip	24.00–27.50
White coated chip	40.00–45.00
Manila coated chip	35.00–40.00
Binders' Board	60.00–65.00

Importers Protests Withdrawn

Eleven new cases on which action has been taken by the Import Committee of the American Paper Industry to secure the proper duty rates involve book paper claimed to be standard newsprint, tablet writing claimed to be standard newsprint, colored and coated fiber boards claimed by importers to be dutiable at lower rates than those believed by customs officials to be proper.

Cases involving 56 importations of various papers, including writing, photographic, bulky printing, wood-free book paper, creped kraft, processed boards, bristols, drawing papers, and similar papers, have been abandoned in United States Customs Court by the importers who had previously protested against customs officials' rulings. The importations averaged a value in excess of $1,000 each.

School Officials Using Paper of Foreign Origin

"In these days of American unemployment, and depression in the paper industry, it is astonishing to note that on the Pacific Coast the public school authorities are providing imported paper to distribute to the school children."

This was the statement made before the Salesmen's Association of the Paper Industry, at a luncheon meeting on November 17, by Warren B. Bullock, manager of the Import Committee of the American Paper Industry, which represents the American paper manufacturers in an effort to prevent unfair foreign competition. He added:

"This matter came to our attention when we investigated the low prices reported for foreign paper imported at various Pacific Coast ports. We then discovered that this low priced paper was coming in from foreign mills at a time when there is severe depression among the United States mills.

"There is even suspicion that the paper is being imported in violation of the anti-dumping law. The public school authorities of the Pacific Coast are probably unaware that they are using imported merchandise, when the mills who are losing this business are being asked for contributions to sustain the unemployed. The Federal Government's paper contracts are required to be filled with domestic paper."

Two Firms Associated for Service

Two firms of paper mill engineers, Skinner & Sherman, Inc., Boston, and Johnson & Wierk, Inc., New York, have effected an arrangement or association through which will be offered a complete engineering service for the pulp and paper industry.

Skinner & Sherman, Inc., has specialized in chemical and biological analyses and the development of new processes and products, besides the testing of new materials for paper mills, management methods and improved manufacturing systems. The firm was establihed in 1921 by Harvey J. Skinner, who for many years had been vice-president of the Arthur D. Little Laboratories.

Frederic C. Clark, vice-president of Skinner & Sherman, is known throughout the pulp and paper industry from his work as chief of the Paper Section of the Bureau of Standards during its development period, and as director of the Department of Technical Control, American Writing Paper Company. He has also held executive positions with the Pejepscot Paper Company and the Hawthorne Paper Company, and has taken an active part in many of the important committees of the Technical Association of the Pulp and Paper Industry.

Johnson & Wierk is a firm that has been eminently successful in the design and construction of power plants, steam, hydraulic and electric, one of their most recent jobs being the installation at the mill of the Continental Paper Company, Bogota, N. J., of a 3,500 kw. turbo-generator set and the complete electrification of the beater building containing 11 beaters and 11 jordans. The jordans are now in process of being relocated and repiped.

Johnson & Wierk, Inc., forms the New York branch of the association, with offices in the Grand Central Terminal Building, as formerly, while Skinner & Sherman, Inc., will act as the New England office at the present address 246 Stuart street, Boston, Mass.

Superintendents Annual Meeting in Buffalo

The twelfth annual meeting of the American Pulp and Paper Mill Superintendents Association will be held at Buffalo, N. Y., June 2, 3 and 4, 1932.

The list of committees and program will be announced later.

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Sarpsborg, Norway—Edsvalla, Sweden
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Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
Svanö Aktiebolag, Svanö, Sweden
Aktieselskabet Greaker Cellulosefabrik, Greaker Norway

KRAFT PULP

Nensjö Cellulosa A.—B., Sprängsviken, Sweden
Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
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Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
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BULKLEY, DUNTON & COMPANY,
75-77 Duane Street, N. Y.
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EXPORTS

For the first time in quite a few months, exportations of paper and paper products from the United States registered a gain in point of value during September as compared with the preceding month. Total exports to all places in September reached a value of $1,683,950, contrasted with shipments of a declared value of $1,633,127 in August this year, and $2,299,855 in September, 1930, according to official statistics issued by the U. S. Department of Commerce in Washington. Exports this year, however, have shown a sharp decrease as compared with last year, totaling in value $17,373,527 in the first nine months of 1931, against $23,894,574 in the corresponding period of 1930.

Newsprint exports in September amounted to 1,604,272 pounds, valued at $47,517, against 1,447,236 pounds of a value of $54,126 in the similar month a year ago. Uncoated book paper exports in September were valued at $125,189, contrasted to $158,396 in the same month last year, while wrapping paper shipments reached a value of $110,339 in September, against $202,147 in the similar month in 1930. Exports of writing paper decreased from a value of $147,218 in Septemebr a year ago to $89,273 last September, whereas shipments of cover paper showed a slight gain from $20,416 in September last year to $21,892 this year. Exports of paper boxes were $63,366 in value in September last, against $125,863 last year, while exports of paper bags were valued at $67,840 in September, compared with $83,122 a year ago in the same month.

Exports of boxboard, consisting of paperboard and strawboard, were valued at $38,933 in September, contrasted with $127,529 in the similar month last year, and the value of other paperboard exports in September was $92,327, against $104,815 a year ago.

IMPORTS

Wood Pulp

Probably the most important development in the imported wood pulp situation is the report from Sweden that existing wage agreements in the Swedish pulp and paper mills have been cancelled, effective January 1 next, and that as a result a strike looms in the pulp manufacturing industry of that country. It is likely, so the advices state, that the employers' association will insist on lower wages, to which it is doubtful if labor organizations will agree since the latter are claiming that the reduced value of Swedish currency will automatically reduce wages by 25 per cent. A conflict may ensue which may culminate in a lockout and bring pulp production in Sweden to a standstill such as was seen several years ago when the Swedish pulp mills remained closed for a period of three months.

Meanwhile the pulp market has been scarcely affected by the impending situation in Sweden, evidently largely because demand for pulp currently is limited. A significant feature of the market has been that consumers in the United States have been ready and willing to contract for supplies of pulp for far forward delivery, or for shipment from abroad during the latter half of 1932, but it is said that not a great deal of business in this position has transpired owing to producers abroad being reluctant to sell so far into the future. Arrivals of pulp into the United States of late have been fairly heavy, constituting shipments from Scandinavian and other European sources against contracts and back orders, and the receipt of these supplies, together with reduced requirements, has enabled paper manufacturers to keep mostly out of the market for additional tonnages of pulp.

At the same time, prices of foreign pulps exhibit considerable steadiness. The market seems to have settled on levels following the sharp decline in foreign exchanges which buyers have experienced difficulty breaking through, and it is nothing unusual at present, so reports say, for producers abroad to flatly refuse bids from this side which fail to come up to what are recognized as prevailing market prices. Strong unbleached sulphite of prime quality is quoted at 1.75 cents per pound ex dock American Atlantic seaboard, and easy bleaching sulphite at around 2 cents. About the lowest mentioned on prime bleached sulphite is 2.25 cents a pound ex dock and well above this level is demanded for some mill brands of this class of pulp. Kraft pulp is holding to a price basis of 1.50 to 1.60 cents a pound ex dock for prime grades. Imported groundwood has eased to where supplies are reported available at $23 to $24 per short ton for dry pulp ex dock American Atlantic ports.

Imports of chemical pulp into the United States in September totaled 109,001 long tons of all grades, valued at $4,668,-208, representing the largest month's importations this year with the single exception of January last, according to official statistics compiled by the U. S. Department of Commerce. The September imports compared with 103,154 tons of a value of $4,470,948 in the preceding month, and 101,677 tons of a value of $5,387,122 in the same month last year, and brought the total for the first nine months of 1931 up to 881,874 tons, against 995,115 tons in the corresponding period of 1930.

Groundwood imports in September amounted to 16,741 long tons, valued at $379,978, compared with 26,391 tons of a value of $666,024 in the same month of 1930, and making a total for nine months this year of 129,562 tons, contrasted with 195,670 tons in the similar time of 1930.

Current market quotations ex dock New York, and receipts at the port of New York during November, 1931, these data being taken from manifests of vessels reaching that port last month, follow:

Bleached sulphite, No. 1	2.25– 3.75
Unbleached sulphite, strong No. 1	1.75– 2.00
Unbleached sulphite, No. 2	1.65– 1.80
Easy bleaching sulphite	1.90– 2.15
Mitscherlich, unbleached, genuine	2.25– 2.50
Mitscherlich, unbleached, ordinary	1.80– 2.00
Kraft, standard Swedish	1.50– 1.75
Groundwood, per ton (dry)	23.00–24.00

Lagerloef Trading Co., 600 bls. from Hamburg, 1,377 Helsingfors, 424 Wiborg, 1,158 Kotka, 2,400 Kemi, 1,120 Rauma and 130 Hango; Castle & Overton, Inc., 1,914 bls. from Wiborg, 280 Rotterdam and 2,065 Hamburg; Brown Bros. & Co., 1,278 bls. from Hamburg; M. Gottesman & Co., 8,400 bls. from Sebenik; Bulkley, Dunton & Co., 16,875 bls. from Stugsund; Johaneson, Wales & Sparre, 3,997 bls. from Obbola, 6,600 Sundsvall, 957 Gothenburg and 174 Hamburg; E. M. Sergeant Co., 300 bls. from Oslo and 949 Gothenburg; Atterbury Bros., 1,500 bls. from Oslo; A. P. W. Paper Co., 6,806 bls. and 1,641 tons from Sheet Harbor; Perkins-Goodwin Co., 20,000 bls. from Norrsundet and 381 Gothenburg; Parsons & Whittemore, 360 bls. from Gothenburg and 1,350 Sundsvall; Irving Trust Co., 1,000 bls. from Bremen and 150 Oslo; E. J. Keller Co., 398 bls. from Hamburg; Chemical Bank, 800 bls. from Oslo; J. Andersen & Co., 5,000 bls. from Kaix and 2,050 Greaker; Price & Pierce, Ltd., 600 bls. from Wallvik; Acer & Co., 7,410 bls. from Port Alice, B. C.; Pagel, Horton & Co., 7,250 bls. from Gefle; Bonaventura Pulp & Paper Co., 9,500 bls. from Chandler, Que.; Guaranty Trust Co., 310 bls. from Hamburg; Order, 8,713 bls. from Kotka, 11,280 Hernosand, 675 Oslo, 1,000 Gefle and 226 Wiborg. Pulpwood—G. S. Kerr, 1,050 cords from Shipegan, N. B.; Amtorg Trading Corp., 8,820 cords from Leningrad.

Paper Stock

Papermaking rags imported into the United States in Sep-

PULP

PERKINS-GOODWIN CO.

Established 1846

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PAPER

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

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tember last, according to official statistics issued by the U. S. Department of Commerce, amounted to 7,817,904 pounds, valued at $98,781, compared with 11,207,113 pounds of a value of $155,327 in the preceding month, and bringing the total for the first nine months of this year up to 92,761,331 pounds of a value of $1,261,068, against 243,360,756 pounds of a value of $4,880,448 imported in the similar time of 1930. Other paper stock imports in September reached a quantity of 6,244,957 pounds and were valued at $80,974, contrasted with 5,689,214 pounds of a value of $71,955 in the preceding month, and making a total of 81,652,673 pounds of a value of $1,183,793 for the first nine months of the current year, against 191,453,205 pounds of a declared value of $2,567,269 in the same period a year ago.

Paper stock importations continued on a light scale during November, judging from arrivals through the port of New York. Receipts of papermaking materials of all kinds at that port last month, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Old Rope—S. J. Fisher, Inc., 4 bls.; Castle & Overton, 76 coils; Brown Bros. & Co., 33 bls.; George W. Millar & Co., 46 coils; Banca Commerciale Italiana Trust Co., 60 coils and 76 bls.; Chemical Bank, 64 bls.; Order, 60 bls.

Old Bagging—Darmstadt, Scott & Courtney, 235 bls.; Banca Commerciale Italiana Trust Co., 200 bls.; Alfred Bloch & Co., 309 bls.; T. D. Downing & Co., 77 bls.; Harmon G. Lichtenstein, 168 bls.; Castle & Overton, 46 bls.; Order, 155 bls.

Rags—Castle & Overton, 149 bls.; E. J. Keller Co., 56 bls.; Darmstadt, Scott & Courtney, 68 bls.; Alfred Bloch & Co., 51 bls.; L. Rosenbaum, 190 bls.; C. Nelson, 52 bls.; G. Schuster, 11 bls.; J. Cohen & Son, 10 bls.; Victor Galaup, Inc., 94 bls.; H. W. T. Mali & Co., 78 bls.; Katzenstein & Keene, 6 bls.; George W. Millar & Co., 35 bls.; E. Butterworth & Co., 34 bls.; J. Reiss & Co., 4 bls.; Chase National Bank, 76 bls.; Bank of New York & Trust Co., 47 bls.; Banca Commerciale Italiana Trust Co., 56 bls.; Chemical Bank, 87 bls.; Continental Bank & Trust Co., 98 bls.; Brown Bros. & Co., 47 bls.; Amtorg Trading Corp., 144 bls.; Order, 10 bls.

Miscellaneous Paper Stock—S. Birkenstein & Sons, 117 bls.; Milton Snedeker Corp., 136 bls.; Darmstadt, Scott & Courtney, 100 bls.; Chemical Bank, 81 bls.; Banca Commerciale Italiana Trust Co., 179 bls.; H. W. T. Mali & Co., 85 bls.; Order, 122 bls.

Paper

Imports of paper into the United States underwent a further decrease in point of value during September as compared with the preceding month. The September imports were valued at $9,423,384, against imports worth $9,524,134 in August last, and $11,127,212 in September, 1930, according to official statistics compiled by the U. S. Department of Commerce in Washington. Imports during the first nine months of this year reached a total value of $95,290,102, showing an appreciable decline from the $109,718,378 worth of imports in the corresponding time of 1930.

Paper imports in November were small, taking the receipts through the port of New York as a criterion. Arrivals on all kinds of paper through that port last month, these data being taken from manifests of arriving vessels and therefore unofficial, were as follows:

Printing—Perkins-Goodwin Co., 833 reels from Hamburg and 546 reels Bremen; W. H. Bell, 8,430 reels from Liverpool, N. S.; Jay Madden Corp., 163 reels from Hamburg; Lunham & Reeve, 626 reels from Kotka and 39 rolls Gothenburg; International Paper Co., 1,668 rolls from Dalhousie; Stora Kopparberg Corp., 55 reels from Gothenburg; Walker Goulard Plehn Co., 98 bls. from Gothenburg; F. L. Kraemer & Co., 142 bls. from Gothenburg; Parsons & Whittemore, 46 reels from Gothenburg; Marine Midland Trust Co., 198 rolls from Bremen; Furness, Withy & Co., 2,665 rolls from Liverpool, N. S.; Boyd, Wier & Sewell, Inc., 223 rolls from Hamburg; Bank of Montreal, 3,554 rolls from Corner Brook, N. F.; J. P. Heffernan Paper Co., 14 bls. from Hamburg; T. N. Fairbanks, 25 cs. from Genoa; P. C. Zuhlke, 12 cs. from Antwerp; F. C. Strype, 6 cs. from Rotterdam; E. Dietzgen & Co., 54 cs. from Rotterdam and 55 cs. Hamburg; C. Bruening, 52 reels from Rotterdam; Order, 1,662 reels from Kotka, 1,346 reels Bremen, 102 rolls Wiborg and 347 reels and 26 bls. Oslo.

Wrapping—J. P. Heffernan Paper Co., 50 bls. from Bilbao; F. C. Strype, 14 cs. from Antwerp; Yardley & Co., 4 cs. from Southampton; Borregaard Co., 34 reels and 14 bls. from Gothenburg; H. Reeve Angel & Co., 7 cs. and 4 bls. from Gothenburg; C. Steiner, 24 cs. from Hamburg; E. Dietzgen & Co., 10 cs. from Rotterdam; Coy, Disbrow & Co., 3 cs. from Bremen; M. M. Cohen, 33 bls. from Gefle.

Cigarette—G. A. Henshaw & Son, 55 cs. from Southampton and 36 cs. Havre; Standard Products Corp., 256 cs. from Havre; Champagne Paper Corp., 597 cs. from Havre; American Tobacco Co., 50 cs. from Bordeaux and 1,550 cs. Havre; P. J. Schweitzer, Inc., 22 cs. from Marseilles; M. Spiegel & Son, 5 cs. from Hamburg.

Writing—C. A. Redden, 5 cs. from Havre; Distinctive Writing Paper Co., 4 cs. from Havre; B. Altman & Co., 6 cs. from Southampton; Order, 10 cs. from Havre and 3 cs. Southampton.

Filter—J. Manheimer, 194 bls. from Southampton; H. Reeve Angel & Co., 9 cs. from Southampton and 21 cs. London; A. Giese & Son, 30 bls. from Southampton and 10 bls. Hamburg; C. Sleicher & Scholl Co., 9 cs. from Hamburg; Order, 6 bls. from Marseilles.

Tissue—W. J. Byrnes & Co., 14 cs. from Southampton; B. F. Drakenfeld & Co., 7 cs. from Liverpool; H. A. Vedovi & Co., 10 cs.

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(Barium Base)

improves the opacity of "super" and coated stocks

IN their search for a better means of improving the opacity of paper stocks, leading manufacturers are investigating the superior characteristics of Titanox-B (Barium Base) as a filler and coating material.

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Titanox-B is a true composite, opaque pigment—a white, fine, uniform powder consisting of titanium oxide precipitated upon and coalesced with barium sulphate (blanc fixe).

In some cases it has been found desirable to use Pure Titanium Oxide (TiO_2)—another of our products—instead of Titanox-B. It will be well worth your time to investigate Titanox pigments. Get in touch with our nearest branch for further information.

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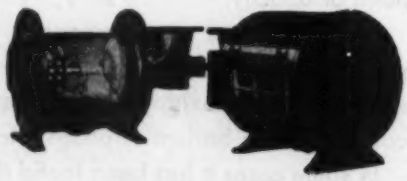

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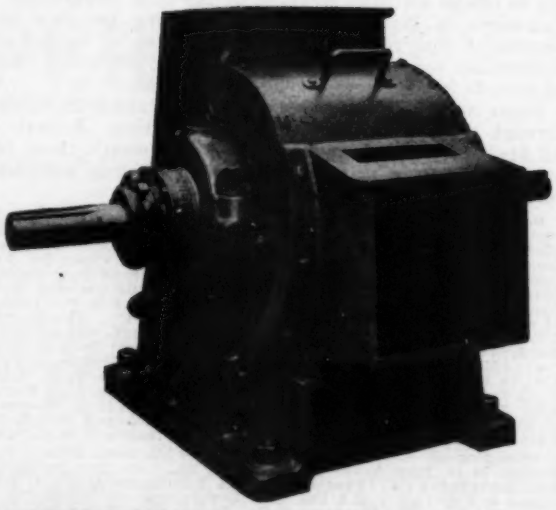

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Hanging—C. A. Haynes & Co., 3 bls. from London; F. J. Emmerich & Co., 3 bls. from Liverpool and 11 bls. Hamburg; W. H. S. Lloyd & Co., 3 pkgs. from Southampton; Bush Service Corp., 4 bls. from London; Irving Trust Co., 11 cs. from Hamburg and 26 cs. Kobe; R. F. Downing & Co., 12 bls. from Kobe, 8 cs. Yokohama, 12 bls. London and 2 cs. Havre; Guaranty Trust Co., 16 cs. from Hamburg.

Cover—Winter, Wolff & Co., 152 cs. from Rotterdam; Globe Shipping Co., 231 cs. from Hamburg and 92 cs. Bremen; Hensel, Bruckman & Lorbacher, 6 cs. from Bremen and 31 cs. Hamburg; International Forwarding Co., 4 cs. from Hamburg.

Board—Salwen Paper Corp., 18 bls. from Gothenburg; Lagerloef Trading Co., 13 reels from Kotka; Johaneson, Wales & Sparre, 1,134 reels from Bremen; Colman Paper Corp., 10 cs. from Antwerp; Henry Fuchs & Son, 8 bls. from Hamburg.

Miscellaneous—Japan Paper Co., 12 cs. from London, 6 cs. Havre and 5 cs. Genoa; D. F. Young, 3 cs. from London; Iwai & Co., 15 cs. from Kobe; Corn Exhange Bank, 31 cs. from Osaka; F. Murray Hill, Inc., 8 cs. from Bremen; Keller-Dorain Paper Co., 27 cs. from Havre and 4 cs. Southampton; B. F. Drakenfeld & Co., 51 cs. from Liverpool; E. Dietzgen & Co., 92 cs. from Hamburg; Happel & McAvoy, 4 cs. from Hamburg; S. Gilbert, 2 cs. from Bremen; H. Lange, 2 cs. from Bremen; Wedemann, Godknecht & Lally, 4 cs. from Hamburg; J. Beckhardt & Co., 4 cs. from Bremen; Penson & Co., 2 cs. from Southampton; Phoenix Shipping Co., 24 cs. from Hamburg; Globe Shipping Co., 3 cs. from Havre; American Express Co., 30 cs. from Havre; Bush Service Corp., 2 cs. from London, 7 cs. Hamburg and 14 cs. Bremen; International Forwarding Co., 9 cs. from Rotterdam and 16 cs. Antwerp.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 54627—Paper bags. Lima, Peru. Purchase and agency desired.

No. 54626—Electric machine for making paper envelopes. Barranquilla, Colombia. Purchase desired.

No. 54542—Insulating board for insulation against noise. Bombay, India. Agency desired.

No. 54581—Insulating board and tiles. Glasgow, Scotland. Agency and purchase desired.

No. 54565—Insulation and wallboard. Edmonton, Canada. Agency desired.

No. 54582—Wood pulp, bleached and unbleached, for paper manufacture. Bombay, India. Purchase and agency desired.

No. 54581—Wallboards, plaster. Glasgow, Scotland. Purchase and agency desired.

No. 54642—Pulp and paper mill machinery, complete installation, including power plant. Baroda, India. Purchase desired.

No. 54765—Bond paper, newsprint and cardboard. Manila, P. I. Agency desired.

No. 54706—Bookbinding linen and paper. Belgrade, Yogoslavia. Agency desired.

No. 54734—Paper cups, sanitary. Aibonito, Porto Rico. Agency desired.

No. 54766—Fiber board in sheets for inner shoe soles and shoe stiffeners. Auckland, New Zealand. Purchase desired.

No. 54764—Wood pulp, bleached and unbleached, for high and medium grade papers. Bombay, India. Purchase and agency desired.

No. 54688—Machinery for paperboard mill. Milan, Italy. Purchase desired.

No. 54866—Fiber, for trunk manufacturing. Barcelona, Spain. Agency desired.

No. 54827—Paper bagmaking machinery. Sao Paulo, Brazil. Agency desired.

No. 54674—Caustic soda. Sao Paulo, Brazil. Agency desired.

One-half of Cuba's imports of paper and paper manufactures come from the United States, according to a bulletin just issued by the Department of Commerce. The annual imports of these lines into the Republic, the bulletin shows, have a value between $5,000,000 and $6,000,000.

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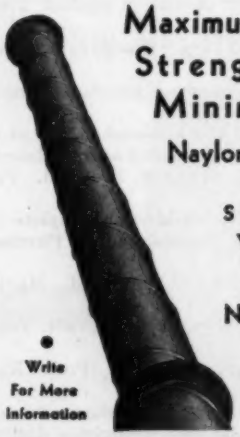

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Engineer Addresses Miami Supers

An interesting meeting was held by the Miami Valley Division of the American Pulp and Paper Mill Superintendents Association, November 21, at Franklin, Ohio.

R. V. Holland, formerly operating engineer of International Paper Company, gave a talk on operations of Canadian mills, particularly newsprint mills.

He stated that some eight years ago, power distribution and application in pulp and paper mills was started in New Jersey and New York states and there was found much could be done to better conditions and reduce costs. With work in this field and later with the International Paper Company, New York, covering various mills, the Louisiana Kraft Mills for a short time, then supervision of an Eastern group, when the Three Rivers, Quebec mill was completed and not functioning satisfactorily, it was turned over to him to build up and systematize operations. The Three Rivers mill was the largest pulp and paper mill in the world, nominally eight—174" machines, four of which were designed for 1,200 feet per minute.

As the demand for speed and more speed and production arose, Mr. Holland said it became necessary to study power use, steam, electrical and power applications, throughout the mills, with costs. Motor surveys were made in various mills with lists of equipment, to determine proper motor types and sizes for the duty; then equipment tests of department apparatus were made at different mills to determine efficiency of present processes, methods, and where changes could be made, to reduce power or increase production; all efforts were towards reduction in cost per ton. Efficiency and economics were considered in their proper relation, and the systematizing of mill operations was begun.

It was his privilege to visit most of the different company's mills throughout Canada, in going up every month. There are some fine mills, splendidly equipped and architecturally a credit to any landscape—for instance, the Anglo-Canadian mill at Limilour, Quebec; St. Lawrence mill, Three Rivers; St. Anne's mill, Quebec; Price Bros., etc.

Mr. Holland told of various equipment and devices installed in the plants for economical operation, such as peak load limit devices, recording instruments, totalizing meters, etc. Synchronous apparatus was used through all mills, both from an investment and production standpoint. Numbers of tests were made in different mills on various equipment to determine value of synchronous drive for quality and production over standard motor, water power, etc.

He explained the use of three types of paper machine drives: "The Harland, a mechanical electrical drive through a horizontal shaft, geared to all sections and through a differential gearing, utilizing rheostatic and voltage control; General Electric Company, synchronous, sectional tie in drive with dryers as reference drive; voltage control, rheostatic starting; Westinghouse Company, synchronous, sectional drive, pilot control, with separate motor generator set for inching, cleaning up, etc.

"A straight D. C. drive is in operation at one of the mills on the Saguenay, with armature and field control, on one paper machine."

"An interesting drive," said Mr. Holland, "is a synchronous drive at the St. Anne's mill at Quebec. There are 31 motors, if I remember correctly, one for each two dryers. There are 46 dryers in all, five feet in diameter each, and each two dryers are geared together and to a synchronous motor, tied in with a main synchronous motor control. The other motors are on presses, couch, calenders, etc. Some modifications were made from the original scheme. However, it is operating satisfactorily. The inherent characteristics of synchronous motors will, perhaps, make this the only one of its kind in commercial use, but it was a clever scheme. Considerable research and original development was done at this St. Anne's mill and carried through successfully."

Mr. Holland touched on various subjects such as bearings, pumps, lubrication, etc. and said, "It is only in the past six

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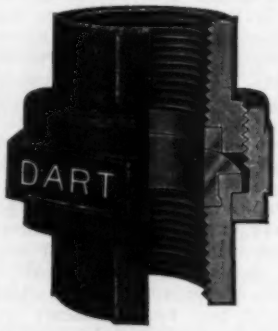

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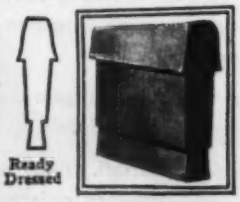

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years, we may say, that engineering research and analysis has been recognized and become of greatest use in the industry. In the building up of power use and systemetizing mill methods and practices, much has been done and much still remains to be done in the pulp and paper field."

◆ NORTHERN NEW YORK ◆

A number of orders for Kraft wrapping paper, used in the manufacture of paper bags, has resulted in the reopening of the Taggart Corp. mill at Herrings, according to announcement made at the headquarters of the concern in Watertown. The mill will run on part time for an indefinite period, probably three days a week. Reopening of the mill resulted in the calling back to work of a number of men laid off when the plant closed several weeks ago. The machines at Herrings which produce small bags have been in operation steadily although the rest of the mill was shut down.

The Beaverbox Manufacturing Co. of Beaver Falls, whose plant was destroyed by fire some weeks ago, is building a new plant. The frame work of the new structure is now up. Officials of the company hope to have the factory in production in the near future.

A barge laden with pulpwood bound for the Union Bag and Paper Co. at Hudson Falls sank at a dock in Albany early in November. There was a 3,300 ton cargo aboard.

The wall paper factory at Plattsburgh is working on a 24-hour basis to fill orders for spring delivery, according to the Wall Paper association. Another factory at Hudson Falls is working two full shifts.

William Eldridge, 73, former Brownville and Dexter paper mill superintendent, died, Nov. 22, at Bozrahville, Conn. Mr. Eldridge spent the greater part of his life in Brownville and Dexter but had been employed in a paper mill at Bozrahville for about ten years.

The International Pulp Co. of Gouverneur has filed a formal complaint with the Interstate Commerce Commission against the New York Central and other railroads attacking the freight rate on talc from Hailesboro, N. Y., to destinations in New York, New Jersey, Pennsylvania, Maryland, Delaware, Ohio, Indiana, Illinois, Michigan, West Virginia, Virginia and New England.

The rates from Hailesboro are alleged to be unduly prejudicial to the complainant and preferential to its competitors in New England, North Carolina and Georgia.

Power from the hydroelectric development of the Beebee Island Power Corp. in Watertown will be available about Jan. 1, 1932, according to G. Seymour Knowlton, president of the corporation. Mr. Knowlton is also president of Knowlton Brothers, Inc., paper manufacturers who own a share of the power development.

An order for a small special machine has been received by the Bagley & Sewall Co. of Watertown, C. W. Valentine, president of the company, announced Nov. 28. He said while this order is for a special machine, which is nothing more than an auxiliary to one of the large paper machines, it is very encouraging at this time. In fact, the smaller order department is showing improvement, and the situation looks much better now.

William H. Sayer, 71, for 20 years superintendent of the National Paper Products Co. mill at Carthage, died Dec. 2, at his residence in Black River.

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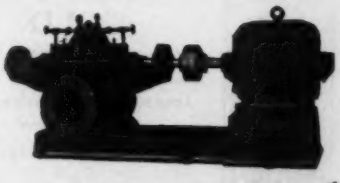

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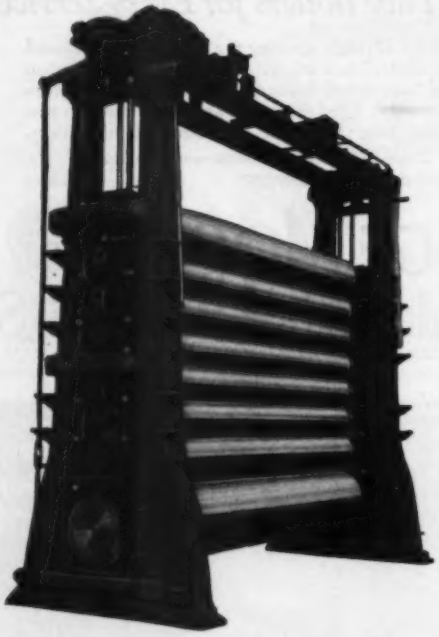

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